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Offshore Environmental
Studies Program

OCS Report
MMS 87-0073

Regional Studies Plan Fiscal Year 1988

(Final Report,
Atlantic Outer Continental Shelf)

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MMS
U.S. Department of the Interior
Minerals Management Service
Atlantic OCS Region

COMPLETED

Offshore Environmental Studies Program

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MMS 87-0073

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(Final Report,
Atlantic Outer Continental Shelf)

U.S. Department of the Interior
Minerals Management Service
Atlantic OCS Region

Vienna, Virginia
1987

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ATLANTIC OCS REGION

FINAL REGIONAL STUDIES PLAN

FISCAL YEAR 1988

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SECTION I

INTRODUCTION

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ATLANTIC OCS REGION

FINAL REGIONAL STUDIES PLAN

FISCAL YEAR 1988

INTRODUCTION

The purpose of this document is to present the final Atlantic Outer Continental Shelf (OCS) Regional Studies Plan for Fiscal Year (FY) 1988. The plan is organized by sections beginning with the criteria for ranking studies. The criteria and their use is provided in guidance from the Washington Office, Branch of Environmental Studies. The proposed 5-Year OCS Program that includes North Atlantic sales in 1989 and 1991, a Mid-Atlantic sale in 1989, and a South Atlantic sale in 1990 has been incorporated in establishing the ranking of the studies. For FY 1988, proposed studies for the Atlantic OCS Region have been ranked in priority order within study classes. The FY 1988 proposed studies are listed by regional study number and provide the following information: study title, priority rankings, a description of objectives, and justification. Two nonenergy mineral studies are included. However, they are not ranked, and funds are not requested for these studies.

Included within this document are the comments and recommendations made on the proposed FY 1988 Atlantic OCS Region studies by the Regional Technical Working Group (RTWG) Subcommittee on Environmental Studies during the RTWG meeting in April 1986.

Additional comments and recommendations were received on the draft FY 1988 Regional Studies Plan after its circulation to RTWG and Scientific Committee members in July 1986. These comments and recommendations are included in Section VI.

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SECTION II

CRITERIA USED IN THE RANKING OF ENVIRONMENTAL STUDIES

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CRITERIA USED IN RANKING OF ENVIRONMENTAL STUDIES

CRITERION A

Mandate for Conducting Study

1. Information for a study is essential for a specific leasing, lease management, or program management decision because the study is:

    a. Ordered by a court to support a sale, program specific decision, or

    b. Explicitly required by existing Federal or State statute, or by an Agency Directive.

2. The study will provide critical information for a specific leasing or lease management decision involving environmental risk or impact or a specific program management decision; or a similar study is required by previous agreement for settlement of litigation in a similar Outer Continental Shelf (OCS) region.

3. The study will provide useful information for a specific leasing or lease management decision involving environmental risk or impacts or a specific program management decision.

4. The study information will not affect a specific leasing or lease management decision involving environmental risk or impact or a specific program management decision. However, it could contribute to improved leasing, lease management, or program management decisions through the enhancement and/or refinement of the quality of the data base.

CRITERION B

Timing and Content for the Required Information

1. The study must be initiated within the budget period at issue:

    a. In order to be completed in time for use in a specific leasing, lease management, or program management decision;

    b. Because the study is a necessary prerequisite for another study to support a leasing, lease management, or program management decision; or

    c. Because the study is a continuation or logical extension of consequence to an ongoing study to support a leasing, lease management, or program management decision.

2. A study can be deferred until the next budget period; however, such a deferral can create a significant risk such that the study cannot be completed in time for use in immediate leasing, lease management, or program management decisionmaking.

3. A study can be deferred until the next budget period and can still be completed in time for use in forthcoming leasing, lease management, or program management decisionmaking.

The above cited criteria resulted in 12 classes of studies in the following priority order:

Class 1 - A1B1
Class 2 - A2B1
Class 3 - A1B2
Class 4 - A2B2
Class 5 - A3B1
Class 6 - A3B2
Class 7 - A1B3
Class 8 - A2B3
Class 9 - A3B3
Class 10 - A4B1
Class 11 - A4B2
Class 12 - A4B3

SECTION III

STATUS AND SCHEDULING
OF
LEASE SALE ACTIVITIES

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STATUS AND SCHEDULING OF LEASE SALE ACTIVITIES

South Atlantic OCS Status and Scheduling

Three OCS lease sales (Sale 43, Sale 56, and Sale 78) have been completed for the South Atlantic region.

Sale 43 was held on March 28, 1978 and offered for lease 224 tracts located off the coasts of South Carolina, Georgia, and Florida (Southeast Georgia Embayment area). Bids on only 57 tracts were received, resulting in 43 leases. In addition to a preliminary COST well (Continental Offshore Stratigraphic Test), six wildcat exploratory wells have been drilled. All wells have been reported dry and no further exploratory plans have been submitted for the embayment area.

Sale 56 was held on August 4, 1981, and offered for lease 285 tracts in both deepwater and shallow-water sites from North Carolina to Northern Florida OCS areas. Fifty-four tracts drew bids, with more interest concentrated on deepwater tracts off North Carolina. Bids on 47 tracts were accepted.

Re-Offering Sale RS-2, held on August 5, 1982, resulted in nine tracts previously offered in Sale 56 receiving bids and eight of the bids being accepted.

Sale 78 was held on July 26, 1983. Of the 3,582 tracts offered, 11 tracts drew bids and were accepted.

Currently, there are 20 active leases in the South Atlantic region. Sale 108, tentatively scheduled for February 1990, is included in the 1987-1992 proposed 5-year program.

Mid-Atlantic OCS Status and Scheduling

Four OCS lease sales (Sale 40, Sale 49, Sale 59, and Sale 76) have already taken place in the Mid-Atlantic region.

Sale 40 was held on August 17, 1976. Of the 154 tracts offered, 93 were leased, 53 that were offered did not receive bids, and bids on 8 tracts were rejected. As a result of litigation, the normal 5-year life of the lease was extended by 233 days. Thus, exploratory drilling did not commence until March 1978. Of the 28 wells drilled on Sale 40 blocks, 5 wells have yielded discoveries of natural gas and 1 discovery of oil. The five wells were located on three adjacent blocks of Official Protraction Diagram NJ 18-3: Texaco on Block 598 (two gas zones), Tenneco on Block 642 (one oil and seven gas zones), and Exxon on Block 599 (three gas zones). As of May 1984, all of the Sale 40 leases have expired or have been relinquished.

In January 1979, the United States Geological Survey (USGS) announced that the second of two COST wells, begun in October 1978, had encountered a significant show of gas and possibly some condensate or light oil, while drilling for core samples off structure on continental slope. The COST well, financed by 11 participating oil companies, was drilled on Block 66 (NJ 18-6), about 93 miles southeast of Atlantic City, New Jersey.

Sale 49 was held on February 28, 1979. Of the 109 tracts offered, 39 were leased, 65 were offered but not bid on, and bids on 5 tracts were rejected. Sale 49 resulted in one well being drilled, which was completed and abandoned in October 1979. As of April 1984, all of the Sale 49 leases have expired or have been relinquished.

Sale 59 was held on December 8, 1981. On the 253 tracts offered, 51 were leased, 155 were offered but not bid on, and high bids on 47 tracts were rejected. All of the 51 leased tracts carry 10-year lease terms to allow for the development of advanced technology in deeper waters. To date, Shell has drilled four wells on Sale 59 blocks. Drilling has ceased on Blocks 372, 586, and 587 of NJ 18-6, and Block 93 of NJ 18-9.

Re-Offering Sale RS-2 was held on August 5, 1982, which resulted in 19 tracts previously offered in Sale 59 receiving bids and 18 of those bids being accepted.

Sale 76 was held on April 26, 1983. Of the 4,050 tracts offered, 40 tracts drew bids and bids on 37 tracts were accepted.

At present, there are 85 active leases in the Mid-Atlantic region. Sale 121, tentatively scheduled for July 1989, is included in the 1987-1992 proposed 5-year program.

North Atlantic OCS Status and Scheduling

One OCS lease sale, Sale 42, has been completed in the North Atlantic region. This December 18, 1979, sale offered 116 tracts. Of the 73 tracts receiving bids, 63 were accepted and leased. In addition to two preliminary COST wells, eight exploratory wells have been drilled on Sale 42 blocks; all were reported dry. Currently there are no active leases in the North Atlantic region. Two sales (Sales 96 and 134) tentatively scheduled for early 1989 and June 1991 are included in the 1987-1992 proposed 5-year program.

Straits of Florida OCS Status and Scheduling

To date no lease sales have been held in the Straits of Florida region. One lease sale is scheduled for June 1992 and is included in the 1987-1992 proposed 5-year program.

Table 1 lists the currently proposed lease sales for the Atlantic OCS Region.

Table 1.--Proposed Atlantic OCS Region lease sales by planning area, number, and year

Planning Area	Sale	Date
North Atlantic	96	1989
Mid-Atlantic	121	1989
South Atlantic	108	1990
North Atlantic	134	1991
Straits of Florida	140	1992

Table 2. Priority ranking by class of proposed Atlantic OCS Region Environmental Studies for FY 1988

Study Title	Ranking	Class
1. Site-Specific Monitoring of Marine Mammal Activity in the Atlantic OCS Lease Sale Areas.	A1B1	1
2. A Synthesis of Information on the Potential Impacts on Fish and Shellfish Species from OCS Oil and Gas Activities.	A2B1	2
3. Development of a Tag to Monitor Migratory Patterns and Habitat Use of Marine Mammals.	A2B1	2
4. Evaluation of Depositional Environments in Submarine Canyons of the North Atlantic Continental Slope.	A2B2	4
5. Published Synthesis of Information on the "Effects of Oil on Marine Mammals."	A3B1	5
6. Use of Satellite Tracked Drifting Buoys to Simulate the Movement of Spilled Oil.	A3B1	5
7. Synthesis of Information on the Effects of Noise on Marine Mammals and Production of a Manuscript.	A3B2	6
8. Synthesis of the Effects of Oil and Gas Activities on Coastal and Marine Birds of the Atlantic OCS Region, and the Florida Straits: Production of a Manuscript for Publication as a Text.	A3B2	6
9. Water Quality Parameters Affecting Shelf-Edge Ecosystems.	A3B2	6
10. Onshore Impacts of Offshore Oil and Gas Exploration, Development, and Production on the Atlantic OCS.	A3B2	6
Proposed Hard-Minerals Resources, Environmental Studies		
° Environmental Effects of Marine Mining.	N/A	N/A
° Nonenergy Mineral Development - A Synthesis of Existing Studies on the Development of Hard-Rock Minerals on the OCS: Exploration, Development, Production, and Marketing/The Onshore Impacts.	N/A	N/A

SECTION IV

PROPOSED
ATLANTIC OCS REGION
ENVIRONMENTAL STUDIES
FOR FY 1988

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National Study List No.: 1 Regional Study No.: 1

Title: Site-Specific Monitoring of Marine Mammal Activity in the Atlantic OCS Lease Sale Areas.

Region: Atlantic Priority Ranking: A1B1

Proposed Period of Performance: FY 1987-FY 1989 (3 years)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): North, Mid-, and South Atlantic Planning Areas

Key Words: Behavior; breeding (reproduction); feeding; habitat description/identification; cetaceans; Marine Mammal Study; migrations; remote sensing; right whales; humpback whales.

Description of Proposed Project:

Objectives:

The primary focus of this study will be on the endangered right and humpback whales, with opportunistic observations of the fin and sperm whales. Primary objectives are to determine temporal and spatial distribution patterns; identify migration routes; identify principal habitat-use patterns for areas of feeding, breeding, and calving; identify possible impacts from OCS activities; and suggest appropriate mitigating measures.

Methods:

Shipboard, remote sensing, and aerial surveys to determine distribution, abundance, behavior, habitat utilization, and migration routes of endangered and other marine mammal species.

Area of Study:

The following planning areas are arranged in priority order of proposed study. This is based on the existing jeopardy biological opinion and the availability of funds.

(1) North Atlantic, (2) South Atlantic, (3) Mid-Atlantic.

Products:

° Bimonthly progress reports, two annual reports, and a final report.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

Study information is essential and its collection is mandated by two jeopardy biological opinions from the National Marine Fisheries Service (NMFS). A letter dated September 8, 1983, from the Assistant Administrator for Fisheries to the Acting Director, MMS, states in summary that the endangered right and humpback whales are likely to be jeopardized by oil and gas exploration activities in areas within the North Atlantic region. Another letter dated July 5, 1984, states in summary the endangered right whale is likely to be jeopardized by oil and gas exploration activities in the South Atlantic Planning Area.

The Scopex proposal submitted by the University of Rhode Island to the National Science Foundation (NSF) and to MMS (February 7, 1987) addresses the endangered right whale (Eubalaena glacialis) productivity in the Great South Channel. The potential for oil spills and their trajectory risk influence, although low, are however a factor that cannot be ignored with regard to the endangered species right whale in the pending Sale 96 issues.

Date Information Required and Decision Involved:

All available information will be used as input for any Environmental Impact Statement (EIS) written relevant to proposed Atlantic Region lease sales. Updated information would also be incorporated into any Notice of Sale for the region.

Current Status of Information on this Topic:

There are no studies that provide direct data on the potential impacts of oil and gas activities on right whales. Studies have been conducted on the effects of offshore industrial and vessel activities on baleen whales.

Applicability of Information to Issues of Regional or Programmatic Concern:

Right whales have been sighted in all three planning areas of the Atlantic OCS. They migrate north and south and are thought to use the various areas for different purposes (e.g., feeding in the north and calving in the south). The information gained from this study would apply to issues of both regional and programmatic concern.

In addition, a formal opinion of concern as to the jeopardy of the right whale's existence has been expressed by the NMFS, which underscores the importance of this study. The Minerals Management Service has received five separate biological opinions from NMFS during the period 1980 to 1984, and each has stated jeopardy concerns.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Washington, D.C. 20235

F/M412:PAC

Sep 8, 1983

Mr. David C. Russell
Acting Director, Minerals
Management Service
Department of the Interior
Washington, D.C. 20240

Dear Mr. Russell:

Enclosed is the Biological Opinion prepared by the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended, concerning potential impacts of Outer Continental Shelf (OCS) oil and gas leasing and exploration activities in the proposed February 1984 lease offering on endangered and threatened species. The NMFS issued a North Atlantic Region Biological Opinion (June 16, 1982) in response to a previous request from the Minerals Management Service (MMS) for regional consultation. The enclosed opinion supplements the regional opinion.

Based upon our review of new and supplemental information, we have determined that, except as modified in the enclosed opinion, specifically to address the proposed February 1984 lease offering, the conclusions reached in the June 16, 1982 Biological Opinion remain valid. In that opinion, NMFS concluded that oil and gas exploration activities, conducted in areas within the North Atlantic Region identified as "preferred" by right and humpback whales, are likely to jeopardize the continued existence of those endangered whale species. That opinion also recommended that studies be conducted to determine the potential effects of such activities on all components of the food chain of endangered whales.

The NMFS is aware of the research efforts conducted or sponsored by MMS and we continue to applaud those efforts. However, to help fulfill the requirements of Section 7(a)(2) of the Act and to help reduce the potential for adverse impacts to endangered whales, we recommend that MMS undertake the following research, prior to initiation of exploration activities within the preferred area: 1) Implement a site-specific distribution and abundance survey of right whales within the preferred area to determine the extent and manner in which the area is utilized by this species; and 2) Conduct a study of the primary food species and associated food chains of humpback and right whales. Those activities provide information which can be used by MMS to make more reliable determinations regarding measures necessary to protect the endangered right and humpback whales. We also offer the following as a reasonable and prudent alternative which can be adopted to insure that the proposed activities are not likely to jeopardize the continued existence of the endangered right whale: Seismic geophysical surveys should be prohibited in the preferred area when right whales are present. Right whales usually are

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present from April 1 through July 15, however, we caution MMS that these dates are guidelines and that the whales may be in the preferred area before April 1 and/or after July 15. Seismic geophysical operations should be allowed in this area only when right whales are not likely to be in the vicinity and be affected by such operations. We believe that until additional information is developed, the best method of avoiding jeopardy to the right whale is to delete those tracts in the proposed February 1984 lease offering that extend into the specified preferred area.

The revised regulations governing the Section 7 consultation process provide the Federal agency or applicant an opportunity for review and "further discussion" (Section 402.16) of conservation recommendations and any reasonable and prudent alternatives contained in a biological opinion. We encourage MMS to utilize that opportunity or to identify and discuss other reasonable and prudent alternatives.

Consultation must be reinitiated if new information reveals impacts not considered in this opinion; the identified activities are modified; or a new species listed or critical habitat is designated that may be affected by the proposed activities.

I look forward to continued cooperation in future consultations.

Sincerely yours,

William G. Gordon
Assistant Administrator
for Fisheries

Enclosure

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Washington, D.C. 20235

JUL 5 1984 F/M412:PAC

Mr. William D. Bettenberg
Director
Minerals Management Service
Department of the Interior
Reston, Virginia 22091

Dear Mr. Bettenberg:

This responds to your letter of January 30, 1984, requesting reinitiation of formal consultation pursuant to Section 7 of the Endangered Species Act of 1973 (ESA), for all operations pertaining to offshore oil and gas leasing and exploration associated with proposed Lease Sale No. 90 in the South Atlantic Planning area. The availability of new information provided by the Minerals Management Service (MMS) concerning the proposed project, as well as additional data on endangered and threatened species in the South Atlantic, warrants a re-examination and update of our July 14, 1980, and September 30, 1982, biological opinions for the existing lease sale area.

Based upon our review of the above-mentioned data, the proposed OCS exploration activities and the biology and ecology of endangered marine species in the region, we have made the following determinations: 1) populations of blue, fin, sei, humpback and sperm whales or of any populations of endangered or threatened sea turtle species are not likely to be jeopardized as a result of the proposed activities; and 2) due to its critically small population size, OCS activities that adversely affect the well-being of individual right whales or interfere with the calving, feeding or migration activities of this species would be likely to jeopardize the continued existence of the species.

The National Marine Fisheries Service believes that it is possible to plan activities in such a way as to avoid the likelihood of jeopardizing the continued existence of the endangered right whale. In the enclosed opinion we offer reasonable and prudent alternatives to assist MMS in meeting this goal. This opinion also offers research recommendations which, if implemented, would expand the existing information base for right whales and other endangered or threatened marine species that occur in the project area.

Consultation must be reinitiated if the proposed action is subsequently modified in a manner that causes an effect to listed species that was not considered herein, if a species or critical habitat that occurs in the area covered by your program is subsequently listed, or if new information reveals impacts of the identified activities that may affect listed species. In addition, consultation must be reinitiated before development and production activities occur in the Sale 90 area.

The enclosed Biological Opinion in no way permits the taking of endangered whales. Such taking, unless properly permitted, is prohibited under Section 9 of the ESA and under Section 102 of the Marine Mammal

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Protection Act (MMPA). Section 17 of the ESA states that unless otherwise provided, no provision of the ESA shall take precedence over any more restrictive provisions of the MMPA. Under Section 101(a)(3)(B) of the MMPA taking of depleted species of marine mammals can be permitted only for scientific purposes. Therefore, no statement concerning incidental taking of endangered whales pursuant to Section 7(b)(4) of the ESA is appended to our opinion.

No sea turtle mortality has been reported incidental to OCS activities in the South Atlantic Planning Area, and we do not anticipate any. Therefore, we have not provided an estimate, pursuant to Section 7(b)(4), of an acceptable level of mortality. Our appended statement concerning incidental taking contains the following conditions: any mortality of sea turtles due to activities associated with this project must be reported to the Southeast Regional Office as soon as practical, to determine, in cooperation with MMS, if measures need to be developed to prevent or mitigate additional mortality.

I look forward to continued cooperation during future consultations.

Sincerely yours,

James E. Douglas, Jr.

for William G. Gordon
Assistant Administrator
for Fisheries

Enclosure

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National Study List No.: 21 Regional Study No.: 2

Title: A Synthesis of Information on the Potential Impacts on Fish and Shellfish Species from OCS Oil and Gas Activities.

Region: Atlantic Priority Ranking: A2B1

Proposed Period of Performance: FY 1986-FY 1988 (3 years)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): All OCS Regions (Generic study)

Key Words: Fisheries, (commercial, native, shellfish, sport); fishery study; effects of noise; effects of oil; literature search; population model; population; density; estimates; and distribution.

Description of Proposed Project:

Objectives:

The main objectives of the proposed study are to (1) evaluate the ability to transfer existing research on the impacts of oil and gas activities on fish and shellfish resources between planning areas, regions, and species; (2) analyze the present status of abundance and distribution data relating to commercially, recreationally, or ecologically important species; and (3) review the existing literature on impacts on fish and shellfish species that may result from OCS oil and gas activities.

Methods:

The primary method employed for the completion of the project would be a literature review with a subsequent comprehensive analysis of the potential to transpose findings among planning areas, regions, and species. Other objectives would be met by a literature review and evaluation of existing data bases.

Area of Study:

All OCS Regions.

Products:

This study will produce a single final report that would include all of the findings and a complete analysis of the potential impacts of oil and gas activities on the fish and fishery resources of the United States. The analysis will provide a means to evaluate the existing studies of impacts for transposition to areas or species that were not included in the original research. Subsequently, the evaluation could reduce any duplication in effort and allow a more productive dispensation of resources.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

Concern for the renewable resources derived from fish and shellfish species within all OCS Regions is one of the primary recurring issues during all of the steps in the process of developing OCS oil and gas resources. Without a comprehensive evaluation of the status of the present knowledge of potential impacts on these biological resources, an effective assessment of the relative merits of these two offshore resources cannot be adequately addressed.

Date Information Required and Decision Involved:

Fiscal Year 1988 would be the third fiscal year which would provide funds for this study. The final product will be completed by August 1988.

Current Status of Information on this Topic:

Information related to this study presently is highly disassociated, with individual analysts in each region being responsible for the inclusion of pertinent studies. No unified attempt at relating the existing studies to other areas or species has been performed.

Applicability of Information to Issues of Regional or Programmatic Concern:

Analysis of the impact of oil and gas activities on fish and fishery resources is and will continue to be an issue that will affect each region and the MMS program for mineral resource development. The ability to specifically address the potential impacts will greatly increase the viability of the assessment of the effects of oil and gas exploration and development activities on fish, shellfish, and fishery resources.

National Study List No.: 22 Regional Study No.: 3

Title: Development of a Tag to Monitor Migratory Patterns and Habitat Use of Marine Mammals.

Region: Atlantic Priority Ranking: A2B1

Proposed Period of Performance: FY 1987-FY 1989 (3 years)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): All OCS Regions (Generic study)

Key Words: Radio tags; satellite tags; marker; Marine Mammal Study; whales (general treatment of all whales); migrations; behavior; habitat; remote sensing; aerial; satellite.

Description of Proposed Project:

Objectives:

There is a need for information concerning the distribution, abundance, migration routes, and habitat-use patterns of endangered cetaceans in order to avoid placing them in jeopardy during oil and gas activities. The objective of the proposed study is the development of an implant attached to a transmitter that can be embedded in large cetaceans in a noninjurious manner and used to tract large cetaceans for long distances.

Methods:

Evaluate ongoing studies in Alaska and Pacific OCS Regions relative to performance standards. Based on the evaluation, organize an international workshop to review current technological and biological abilities to tag. Determine what monitoring/tagging systems are available, evaluate past materials and tagging attempts, and determine the best materials and monitoring approach to be followed. Based on the evaluation, initiate a competitive procurement for the development of a tag. Laboratory and at sea testing of the tag on selected whale species is contemplated during this study.

Area of Study:

All OCS Regions.

Products:

A biocompatible tag, interim reports and a final report.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

Provide information for pre- and postleasing management decisions in all regions.

Two marine mammal workshops were held in the Atlantic OCS Region in December 1984 to present the results of the MMS contract, "Study of the Effects of Oil on Cetaceans," by the University of Guelph and for discussion of future directions of marine mammal research. The first workshop involved scientists and marine mammal specialists drawn from various Agencies and MMS Regions to promote an exchange of information and ideas concerning the current status and future of marine mammal research. Dr. Geraci and Mr. David St. Aubin of the University of Guelph were invited to present the results of their studies and to make recommendations for future research. Attendees included representatives from the Atlantic OCS Region, Branch of Environmental Studies, Pacific OCS Region, Marine Mammal Commission, and the MMS Scientific Committee. The second workshop evaluated recommendations for future marine mammal research that were made at the first workshop. The consensus of the participants at the second workshop was to recommend the funding of three study phases: (1) Tagging Studies, (2) Bioaccumulation Studies, and (3) Publications.

Date Information Required and Decision Involved:

This is a generic study and will provide information for all sales on the proposed 5-year program.

Current Status of Information on this Topic:

The MMS has sponsored several programs in the Alaska and Pacific OCS Regions to develop a marine mammal tag. A recent laboratory study titled "Study of Effects of Oil on Marine Mammals" approached the problem of long-term tracking by attempting to develop a suitable implant. The degree of success with a porous polyethylene material indicated that construction of a composite implant using another material to form an impermeable seal at the epidermal surface may produce a viable method of attachment.

Several investigators have been developing tags to track large cetaceans. The ability to tag and consistently track several large cetaceans for 3-18 months has not been demonstrated. The MMS Alaska OCS Region funded Dr. Bruce Mate, Oregon State University, in the development of a tag that can be used to monitor large cetaceans via satellite. If MMS headquarters determines that this research is not successful, the research proposed in this plan will be initiated.

Applicability of Information to Issues of Regional or Programmatic Concern:

There is a need for information concerning the distribution, abundance, migration routes, and habitat-use patterns of endangered cetaceans in order to avoid placing them in jeopardy during oil and gas activities.

National Study List No.: 65 Regional Study No.: 4

Title: Evaluation of Depositional Environments in Submarine Canyons of the North Atlantic Continental Slope.

Region: Atlantic Priority Ranking: A2B2

Proposed Period of Performance: FY 1988-FY 1989 (2 years)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): North Atlantic

Key Words: Circulation/current study; drilling discharges; current measurements; meters; drifters; geology; submarine canyons; topography; submarine; trace metals; transport (physical process).

Description of Proposed Project:

Objectives:

° Determine the extent to which fine-grained materials, such as drilling muds or petroleum contaminated suspended particulate material, may be deposited in selected canyons.

° Determine the "flushing rates" of selected canyons for these fine-grained materials.

° Determine whether or not there is a depositional environment in areas of selected canyons where there are sensitive biological resources.

Methods:

A limited number of canyons located in the proximity to petroleum industry interest areas on the Georges Bank will be selected and studied. Fine-grained materials will be collected using shallow cores and sediment drops at selected locations along the canyons. Sedimentation rates will be determined through the use of radioisotopic dating techniques. Concentrations of hydrocarbons and trace metals will be measured in collected materials and compared with future samples collected after any development or production drilling on the Georges Bank. The current velocities and direction will be measured by multilevel current meter arrays in selected canyons.

Area of Study:

Canyons will be selected that are both close to areas of petroleum industry interest and that contain sensitive biological resources.

To date, extensive studies have been done in Lydonia and Oceanographer Canyons by Butman, et al. 1986. (Butman, et al. 1986. North Atlantic Slope and Canyon Study Final Report. U.S. Geological Survey. 1700 pp.) Other investigators have done a limited amount of research on Hydrographer Canyon. The identified area of high industry interest from previous lease sales is from Lydonia Canyon northward. There are still many blocks within a few kilometers of canyons included in the Sale 96 Call Area. The primary area of study is between Oceanographer and Nygren Canyons, including several smaller canyons which have not been named.

Products:

Annual report at the end of FY 1988, with a final report at the end of FY 1989.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

There has been concern expressed by environmental groups, New England State Representatives, and Members of Congress regarding the flow of potentially contaminated sediments through canyons and the contact by this material with sensitive biological resources. The evaluation of the extent of accumulation of fine-grained materials and the potential exposure times of sensitive biological resources to contaminants is necessary for selected canyons.

Date Information Required and Decision Involved:

Information will be required for approval of any development plans or preparation of environmental assessment documents after Sale 96 (October 1988 or later). The information would also be used for presale decisions for Sale 134 (June 1991 or later).

Current Status of Information on this Topic:

The results of active and recently completed studies by Butman and Bothner of USGS (Butman, et al. 1986) are as follows:

Concentration of barium (i.e., abundant element in drilling muds) decreased from 30-170 parts per million (ppm) to 40-60 ppm within 2 kilometers of active drilling around Block 410 on Georges Bank. It was not detectable 6 kilometers away from the drill site. Using refined techniques to separate and analyze only fine-grain materials, including any associated drilling muds, slight barium increases have been found up to 40 miles from drill sites. It should be noted that barium is used as a "tracer" of drilling discharges. It is not a toxic material by itself, but is present in concentrations orders of magnitude higher than elements in drilling muds that are more toxic, such as chromium. The significance of this is that drilling related discharges are diluted over a comparatively short distance to undetectable levels for toxic materials.

Drilling discharges behave in qualitatively predictable ways when released at or near the surface. Cuttings and some associated drilling fluids settle rapidly to the sea floor. The bulk of drill fluids will behave in two general ways, depending on water density.

Studies by the National Research Council show that roughly 10 percent of the very fine materials will disperse near the surface as the characteristic "plume" of a drilling operation. In water less than 50 meters deep, most of the remainder of drilling fluids settle to the seabed within a couple of hundred meters of the drill site. In deeper waters, such as found over North Atlantic canyons, dispersion of muds in the water column and attainment of neutral buoyancy prevent most of the mud from settling out immediately on the sea floor. Forces of dispersion and current transport continue to act and materials tend to settle out, but over greater distances and time spans.

Whether or not a depositional environment exits in a specific canyon is a function of factors that are not well understood at this time. There are data from MMS studies indicating that fine-grained materials are accumulating at the head and along the axis of Lydonia Canyon. There is no similar depositional environment, however, in Oceanographer Canyon. Research by other investigators indicates there is only limited deposition, if any, in Hydrographer Canyon. The significance of this is that accumulation of drilling related discharges is unlikely in canyons where there is limited deposition. The determination of which canyons are depositional environments would, however, have to be made on a case-by-case basis.

During the Georges Bank Monitoring Program, a sediment trap located in Lydonia Canyon was examined for barium content from drilling discharges from Sale 42 leases. Evidence of accumulation of these materials was found in only one sediment trap located in Lydonia Canyon, which is approximately 10 miles south-southeast of one drilling operation (Block 312) and 25 miles southwest of another (Block 410). This is a further indication that dilution may result in little or no accumulation of drilling materials in canyon areas.

Daily net average current velocities in Lydonia and Oceanographer canyons ranged from 2-5 centimeters/second. Peak current velocities approach 30 centimeters/second. Since canyons are typically 20 kilometers long, this translates to a "flushing" time for the shallower portions of the canyon on the order of 5-10 days. The significance of this is that residence time in the canyon and exposure times for potentially affected biological resources to drilling discharged contaminants are limited.

There are data presently being analyzed indicating that resuspension of sediments in the deeper portions of canyons and advection of drilling related discharges may retain these materials for longer periods of time. They would, however, still be considerably diluted, but may accumulate over extended periods of time. Petroleum and toxic metals may be selectively absorbed into the fine-grained materials that may accumulate in certain canyons. The study would characterize the depositional environment in selected canyons.

Applicability of Information to Issues of Regional or Programmatic Concern:

This study will enable MMS to effectively respond to the issues raised in the study justification. If necessary, the study results can form the basis for protective mitigating measures.

National Study List No.: 32 Regional Study No.: 5

Title: Published Synthesis of Information on the "Effects of Oil on Marine Mammals."

Region: Atlantic Priority Ranking: A3B1

Proposed Period of Performance: FY 1986-FY 1988 (3 years)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): All OCS Regions (Generic study)

Key Words: Behavior; Marine Mammal Study; Ecological Study; effects of oil, hydrocarbons; effects-ecological; literature search (Bibliography).

Description of Proposed Project:

Objectives:

This study was initiated in FY 1986. The objective is to produce a manuscript/book on the effects of oil on marine mammals especially the physiological, behavioral, and ecological effects. The FY 1988 effort is to fund the cost of printing the book.

Methods:

Search out literature on the subject from all sources (including foreign journals) and utilize computer searches to collect relevant information. Analyze and interpret the information gathered and present it in manuscript form. This is NOT to be just a compilation of previous studies but an analysis and interpretation of those literature sources.

The manuscript will be turned over to the Government Printing Office for publication as a book.

Area of Study:

All OCS Regions.

Products:

A book titled "Effects of Oil on Marine Mammals."

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

To provide information for making management decisions concerning the timing and size of lease sales in all OCS Regions as well as for developing mitigating measures.

Date Information Required and Decision Involved:

This is a generic study and will provide information for all sales on proposed 5-year program.

Current Status of Information on this Topic:

The MMS awarded a contract in 1979 to the University of Guelph's Ontario Veterinary College in Canada to study the effects of oil on cetaceans. A series of experiments were performed on bottlenose dolphins, Tursiops truncatus, to determine if dolphins could detect and avoid oil in daytime and at night and to determine the effect of oil on dolphin skin, the effect of inhalation of petroleum vapors, and the effect of oil ingestion and bioaccumulation. Part of this study was to determine if gray whales detect oil and if oil will affect the structural and functional properties of baleen from six species of whales. This study was completed in early 1985 and the scientific reports produced include:

° Study of the Effects of Oil on Cetaceans: J. R. Geraci and D. J. St. Aubin, University of Guelph, Guelph, Ontario, July 1982.

° Expanded studies of the Effects of Oil on Cetaceans: J. R. Geraci and D. J. St. Aubin, University of Guelph, Guelph, Ontario, July 1982.

This study and all other studies will be used to synthesize information into a book.

Applicability of Information to Issues of Regional or Programmatic Concern:

To bring together diffused information into one source document that would be applicable to all OCS Regions.

National Study List No.: 49 Regional Study No.: 6

Title: Use of Satellite Tracked Drifting Buoys to Simulate the Movement of Spilled Oil.

Region: Atlantic Priority Ranking: A3B1

Proposed Period of Performance: FY 1988-FY 1989 (1 1/2 years)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): All OCS Regions (Generic study)

Key Words: Current measurements; meters; drifters; model; oil spill; oil spill-probability; radio tags; satellite tag; marker; remote sensing; aerial; satellite; transport (physical process).

Description of Proposed Project:

Objectives:

° Field test and evaluate the satellite-tracked drifting buoy(s) recommended in the FY 1986 portion of the study.

° Recommend design modifications, if necessary, to better simulate the movement of spilled oil in the marine environment.

Methods:

Acquire a small number of commercially available drifters and deploy them in specified areas. The performance of the drifters will be evaluated under operating conditions in the ocean according to the following criteria:

1. Ease of deployment (i.e., by air or small boat),
2. Ease of use and limited requirements for highly trained personnel,
3. Reliability,
4. Low unit cost,
5. Ease of maintenance, and
6. Ease of recovery for possible reuse.

Area of Study:

The area chosen will be in a planning area where a lease sale will be held within a year, or that has complex circulation features of interest to modelers, or that has an Oil Spill Risk Analysis (OSRA) Model that indicates significant probability of oil contacting sensitive biological resources.

Products:

Monthly progress reports and a final report by mid FY 1989.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

This study is to identify a satellite-tracked drifter that simulates the movement of spilled oil on the ocean surface. There are three phases of the study: identification and nonfield evaluation of drifter buoys (1986), field test and evaluation of recommended drifter buoys (1988), and application (1989). If all three phases are successful, the drifters can be used to verify OSRA model results, used to study complex surface circulation patterns in selected areas, and deployed in spills of opportunity to track their movement.

Date Information Required and Decision Involved:

The results are applicable to pre- and postsale decisions after mid FY 1989.

Current Status of Information on this Topic:

There are three to five Service ARGOS, Incorporated certified drifters in various stages of development and availability. There have been a number of surveys of the literature on the physical dynamics of oil motion on the ocean surface. The results of the FY 1986 phase of this study will be used to identify drifter(s) for field testing.

Applicability of Information to Issues of Regional or Programmatic Concern:

This is a research oriented study which may result in a direct empirical method of verifying OSRA model results and is a study of certain surface circulation features without extensive multiyear field physical oceanography programs.

National Study List No.: 33 Regional Study No.: 7

Title: Synthesis of Information on the Effects of Noise on Marine Mammals and Production of a Manuscript.

Region: Atlantic Priority Ranking: A3B2

Proposed Period of Performance: FY 1987-FY 1988 (2 years)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): All OCS Regions (Generic study)

Key Words: Marine Mammal Study; mitigating measures; noise measurements; sound production; literature search (Bibliography); whales (general treatment of all whales).

Description of Proposed Project:

Objectives:

To synthesize results from previous studies on the levels and frequencies of noise produced by OCS activities that may affect marine mammal species. Assess the potential impact of OCS-generated noise on marine mammals and suggest possible mitigating measures. To produce a book titled "Effects of Noise on Marine Mammals." The FY 1988 effort is to fund the cost of printing the book.

Methods:

Research the literature and write results. Analyze and make suggestions based on the literature cited. The manuscript will be turned over to the Government Printing Office for publication as a book.

Area of Study:

All OCS Regions.

Products:

A book useful to OCS resource managers and scientific community.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

For use in making pre- and postlease sale decisions. This will be a single source document that will contain the state of knowledge on this subject field that will make decisionmaking more efficient and reliable.

Date Information Required and Decision Involved:

This is a generic study and will provide information for all sales on proposed 5-year program.

Current Status of Information on this Topic:

The information that is required for this study already exists in the literature in a diffused fashion. This study will synthesize the existing information into a useful format for developing mitigating measures and determining impacts.

Applicability of Information to Issues of Regional or Programmatic Concern:

To bring together diffused information into one source document that would be applicable to all OCS Regions.

National Study List No.: 95 Regional Study No.: 8

Title: Synthesis of the Effects of Oil and Gas Activities on Coastal and Marine Birds of the Atlantic OCS Region, and the Florida Straits: Production of a Manuscript for Publication as a Text.

Region: Atlantic Priority Ranking: A3B2

Proposed Period of Performance: FY 1988-FY 1989 (2 years)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): North, Mid- and South Atlantic, Florida Straits

Key Words: Bird Study; Birds-shorebirds; characterization-ecological; ecological study; effects-ecological; estuaries (wetlands); literature search (Bibliography); nesting (reproduction).

Description of Proposed Project:

Objectives:

Synthesize the effects that oiling may have on the vulnerability of marine and coastal birds and the impact on the distribution of major populations.

Summarize the risk, mortality rates, short- and long-term effects, and impact that modified food chains associated with oil spills may have on the survivability and reproductive ecology of coastal and marine birds.

Summarize and evaluate the various statistical computer models that have been developed for describing methodologies and risks to coastal and marine bird populations.

Methods:

Review published literature, journals, dissertations, theses, unpublished contract reports of field surveys including observations, bonding, nest marking, and stomach analyses for the Atlantic coastal regions including the Florida Straits. Evaluate and assess the location of nesting colonies, estimate breeding population sizes, timing of breeding, reproductive success, importance of food organisms, and foraging areas of marine and coastal birds of the North, Mid- and South Atlantic and Florida Straits region.

Area of Study:

Atlantic coastal regions, Florida Everglade coastal regions, and other OCS areas where appropriate or applicable.

Products:

Manuscript for publication as a book or reference text that incorporates the above-cited objectives through literature summaries and synthesis.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

Informed decisions by MMS decisionmakers concerning OCS oil and gas activities requires a knowledge of the components and interactions of the marine ecosystem including the coastal zone, and the effects of oil and gas activities on the ecosystem. Coastal and marine birds are an important part of the total marine ecosystem. The information generated from this study will fill an important "data gap" and is essential to the actual implementation of energy development programs in the Atlantic, especially with regard to issues dealing with spills and accidental discharges.

Date Information Required and Decision Involved:

The results are applicable to pre- and postsale decisions after FY 1989.

Current Status of Information on this Topic:

There has not been a comprehensive survey or synthesis compiled by the MMS for the Atlantic coastal region and Florida Straits that addresses the impacts of oil and gas activities on coastal and marine birds of this area. This constitutes a significant "data gap" in MMS knowledge and understanding of the total marine ecological system as it pertains to the Atlantic and Florida Straits region.

Applicability of Information to Issues of Regional or Programmatic Concern:

The MMS and Fish and Wildlife Service (FWS) are responsible for developing information on environmental matters related to oil and gas exploration and development activities (Secretarial Order 2974).

The study is designed to address specific issues and objectives to provide MMS decisions and decisionmakers with fundamental information about the marine ecological resources impacted by the OCS oil and gas development and about the role of marine and coastal birds in the ecological system.

National Study List No.: 69 Regional Study No.: 9

Title: Water Quality Parameters Affecting Shelf-Edge Ecosystems.

Region: Atlantic Priority Ranking: A3B2

Proposed Period of Performance: FY 1988 (1 year)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): Mid-Atlantic Planning Area

Key Words: Effects of oil; hydrocarbons; fish or fishery study; fisheries-commercial; site-specific monitoring; tilefish; trace metals.

Description of Proposed Project:

Objectives:

With the increased focus of Atlantic oil and gas leasing and drilling activities on deeper water shelf-edge locations, this study is intended to assess background concentration levels of trace metals and hydrocarbons, in particular polynuclear aromatic hydrocarbons, in sediment, near-bottom water, and benthic organism samples from a selected shelf-edge ecosystem. Existing data from baseline studies on the Mid-Atlantic shelf, slope, and rise and from monitoring programs of the Environmental Protection Agency (EPA) Deepwater Municipal Waste and Deepwater Industrial Wastewater Dumpsites should be incorporated but are not sufficient to respond to concerns expressed for the shelf-edge ecosystems. The ecosystems of interest should include, but may not be limited to, tilefish habitats for which concern has been expressed by the State of New Jersey.

Methods:

Hydrocarbon, in particular polynuclear aromatic hydrocarbon, and trace metal background concentration levels should be determined in carefully selected shelf-edge ecosystem communities. Analyses of sediment samples, benthic organisms, and near-bottom water samples would be required for the background information.

One sampling cruise of 7-10 days duration would be expected to be sufficient to collect biota, water, and surface sediment samples. Major laboratory instrumentation required would include an atomic absorption spectroscope, gas chromatograph, and selected analyses by gas chromatography-mass spectrometry.

Examine and incorporate in the discussion results from the Mid-Atlantic OCS shelf, slope, and rise baseline studies.

Examine and incorporate in the discussion results from the EPA Deepwater Industrial Wastewater and Deepwater Municipal Waste Dumpsites monitoring programs.

Incorporate any studies of the proposed EPA incineration-at-sea burn test.

Area of Study:

Established communities of the shelf-edge ecosystems and directed at those communities of commercial fisheries importance, including tilefish habitats. With current fisheries and baseline environmental data, one area (such as Hudson Canyon) should suffice for a site-specific study, with data extrapolated to other shelf-edge communities. However, shelf-edge ecosystems have different geological, chemical, and biological environments than the shelf ecosystems which may be affected by oil and gas drilling activities in this deeper water environment. Current data does not address concerns for the shelf-edge ecosystems.

Products:

Quarterly progress reports and final study report.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

As exploratory oil and gas leasing and drilling activities in the Atlantic have turned focus to deeper water, shelf-edge locations, there is a potential that established communities of the shelf-edge ecosystems (in particular those associated with canyon flanks) may be adversely affected by these oil and gas exploration and production activities. Since some of these communities are of commercial importance, disruption of the communities would have an impact on commercial fisheries. Water quality in the area of shelf-edge ecosystems may be affected by the oil and gas activities.

New Jersey has repeatedly expressed concern regarding the impact of oil and gas exploration and production activities on the shelf-edge ecosystem, specifically the tilefish communities. This study would be used to respond in part to those concerns.

Date Information Required and Decision Involved:

The Final EIS for Sale 121 is anticipated to be required January 1989. The study results should be available for the Final EIS for Sale 121 or, at the latest, to incorporate in the Notice of Sale (June 1989).

Current Status of Information on this Topic:

Baseline environmental studies in the Mid-Atlantic have focused on the continental shelf, slope, and rise, but not with the specific intent of answering questions for the New Jersey tilefish concerns or the impact of oil and gas exploration and production activities on the shelf-edge ecosystem. The previous studies are pertinent to this concern but do not suffice to answer concerns for the shelf-edge ecosystems and should be supplemented with site-specific information.

Applicability of Information to Issues of Regional or Programmatic Concern:

A carefully selected sampling of shelf-edge ecosystem communities should provide sufficient additional trace metal and hydrocarbon background concentration level information so that, coupled with existing data, the future impact of oil and gas activities on the shelf-edge environment may be assessed. An adverse effect on the water quality may be anticipated as a result of the EPA ocean dumping and proposed incineration-at-sea programs, and the discussion on current background levels of trace metals and hydrocarbons in the shelf-edge ecosystem should include any results from monitoring programs of these activities. Water-quality discussion in the EIS includes cumulative impacts, both current and anticipated.

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National Study List No.: 70 Regional Study No.: 10

Title: Onshore Impacts of Offshore Oil and Gas Exploration, Development, and Production on the Atlantic OCS.

Region: Atlantic Priority Ranking: A3B2

Proposed Period of Performance: FY 1988-FY 1989 (1 year)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): North, Mid-, and South Atlantic

Key Words: Economic model; socioeconomic model.

Description of Proposed Project:

Objectives:

There is a need to update the employment multipliers used to estimate employment and population impacts from oil and gas development on the Atlantic OCS. The most recent study was in 1978 by Weston Environmental Consultants-Designers. The multipliers need updating in relation to the changing regional economies on the Atlantic coast. The objective of this study is to update the research done in estimating employment and population impacts for the Atlantic region.

Methods:

The method(s) to be used would be based on previous research in the gathering and analyzing of data to update. New multipliers would be based on current data and by comparing the results to any previous research.

Area of Study:

Coastal States from Maine to Florida.

Products:

Interim reports and a final report.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

This information is necessary to adequately assess the socioeconomic impacts in EIS's and Secretarial Issue Documents (SID's).

Date Information Required and Decision Involved:

This study is needed for the FY 1988 proposed Lease Sale No. 96 and the other regional lease sales proposed in the 5-year program.

Current Status of Information on this Topic:

The current method for calculating employment and population numbers for use in EIS's is predicated on oil and gas production schedules (regional resource evaluation estimates for exploration and development of specific potential lease sale areas). Oil and gas exploration and development is broken down by activity components with employment multipliers applied to each activity. Direct employment is calculated and the indirect and induced employment is applied to make a composite total employment. The method is straight forward; however, the employment multipliers currently in use come from research based on a 1978 study by Weston Environmental Consultants-Designers. These were based on the combined historical records compiled from the Gulf of Mexico and the North Sea experiences. Likewise, Woodward-Clyde Consultants in 1975 used a similar method based on an exploration/production schedule deriving total employment from employment multipliers.

Multipliers are generally based on the interaction between exporting industries and those firms supplying goods and/or services to those exporting industries. For example, offshore exploration drilling for oil and gas requires a work force plus materials such as drill pipe, welding equipment, food stuffs, etc. These materials are purchased from suppliers. In turn these suppliers purchase their materials from other firms. Employment at each of the businesses is, in part, dependent on the exporting industry. Thus, income and employment multipliers identify the effects an exporting industry has on a local/regional economy.

Multipliers change as the structure of the local and regional economies change. As a region's economy becomes more autonomous, more of these purchases come from local sources. Local/regional employment (indirect and induced) will then revolve around the new basic industries. This will have positive and negative impacts on the infrastructure of the local/regional economy.

There are no current studies being done regarding the onshore effects of offshore exploration, development, and production of oil and gas resources in the Atlantic. With an increase in the price of oil, the region could find itself again at the mercy of oil suppliers as occurred in 1973 and again in 1979-80. The region is particularly susceptible to oil price fluctuations and the changing supply of oil based products. The region could again be of interest to the oil industry as a source of supply rather quickly, thereby speeding up the need to provide leaseable areas for oil and gas development.

Applicability of Information to Issues of Regional or Programmatic Concern:

The information gathered for this study is needed for OCS activities in the region. By updating the information contained in previous studies, the region will be able to respond to State government concerns when making policy choices.

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National Study List No.: N/A Regional Study No.: N/A

Title: Environmental Effects of Marine Mining.

Region: Atlantic Priority Ranking: N/A

Proposed Period of Performance: FY 1988-FY 1989 (2 years)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): North, Mid-, and South Atlantic

Key Words: N/A

Description of Proposed Project:

Objectives:

This study will be accomplished as a multiphase project resulting in a series of reports detailing the effects of marine mining on the environment. Phase I would be identification and synthesis of existing data. Areas of potential mining, types of mining (heavy minerals, sand and gravel, phosphate, etc.), and mining methods would need to be identified along with the potentially affected habitats and biota. Existing data on the chemical composition of the potential hard-mineral resources, shallow geology, and ocean currents would be compiled during this phase. Potential onshore processing methodology and tailing disposal would also be reviewed to allow assessment of the impact to the coastal, near shore, and possibly deepwater environments.

This literature review and summary phase would provide important information to use to assess cumulative impacts on environmental quality, which would then be incorporated into future EIS discussions for oil and gas lease sales. The literature study would also serve as background information for preparation of EIS's for future hard-mineral lease sales.

Phase II would consist of empirical data collection from those areas defined in Phase I. Sample recovery methods (e.g., vibracore, box core, gravity core, etc.) will depend on type of mining and the depth below sea bottom of the zone of economic interest. Samples will need to be tested for pH, sediment grain size, potential for resuspension, current velocity required to maintain suspension, and pollutants such as trace metals and hydrocarbons (both polynuclear aromatic and chlorohydrocarbons), which could be released as a result of the mining operation. Data collected would also have to include current velocity and direction.

Phase III would model the amount of resuspended material from bottom disturbance and mining effluents, its trajectory, and the duration of resuspension.

Phase IV would evaluate the impact of marine mining on the biota. Information on the resuspended material, the length of time of resuspension, and the area affected by the resuspended material will be used to determine what species will be affected and the extent of the impact, especially the alteration of benthic communities and repopulation rates in areas of hard bottom and local commercial fisheries.

Phase V would be the monitoring of actual mining operations to examine the models and predictions. This would help refine the models and predictions and also help to extrapolate the information to other areas.

The major objectives of this study are to examine what toxic materials may be introduced to the environment, how fast and far they spread, their potential effects on water quality and marine biota, and the impact of the actual mining operations on the marine biota.

Methods:

Phase I would be accomplished through literature search. Phase II would require the use of a workboat, sampling equipment (e.g., vibracorer, current meters, Niskin bottles, trawl, box corer, etc.), ship's and scientific crews, and analytical equipment (e.g., gas chromatograph, settling tube, pH meter, etc.). Phase III analysis would be done by computer. Phase IV would require a literature search on the effects of toxic substances on the biota found near prospective mining areas, and computer modeling to determine the impact to the biota. Phase V would be an ongoing project using all of the aforementioned methods.

Area of Study:

South Atlantic

Products:

Products produced as a result of this study would include a report of at least one volume per phase of the study and computer models capable of being updated to reflect new findings.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

This information is necessary to adequately assess the cumulative impact to environmental quality in preparation of future oil and gas EIS's. The information would also be necessary in the preparation of future EIS's for hard-mineral lease sales.

Date Information Required and Decision Involved:

The results of this study will help assess what the cumulative impacts on environmental quality will be for future hard-mineral EIS's and whether or not the impact of hard-mineral mining needs to be mitigated to an acceptable level.

Current Status of Information on this Topic:

This is a new study of a frontier industry. While some of the information gathered for oil and gas development, fisheries, mining in other areas, and other offshore industry will be applicable to mining in the Atlantic, much of the information required will be unknown, necessitating empirical data collection.

Applicability of Information to Issues of Regional or Programmatic Concern:

The information gathered for this study is needed for all OCS activities in all four Atlantic Planing Areas. Much of the information will be applicable to mining of shelf resources in other regions as well.

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National Study List No.: N/A Regional Study No.: N/A

Title: NonEnergy Mineral Development--A Synthesis of Existing Studies on the Development of Hard-Rock Minerals on the OCS: Exploration, Development, Production, and Marketing/The Onshore Impacts.

Region: Atlantic Priority Ranking: N/A

Proposed Period of Performance: FY 1988-FY 1989 (2-year study)

Estimated Cost (By Fiscal Year):

Cumulative Projected Cost:

Applicable Planning Area(s): Mid- and South Atlantic

Key Words: N/A

Description of Proposed Project:

Objectives:

To be able to estimate the effects of hard-rock mineral leasing on the socioeconomic environment which includes the employment potential and demographic growth of the Mid- and South Atlantic Planning Area States. To measure effects an emerging hard-rock industry would have on other industries such as secondary firms that would provide necessary services. This project would provide a first step in building a knowledge base that would be the basis for policy determinations, impact assessments, and mitigation of any adverse effects of a hard-rock mineral leasing program.

Methods:

Search out literature on the subject from all sources and summarize into a report of findings. Analyze existing research and determine short falls and data gaps. Synthesize a "typical" hard-rock mineral industry. Creating multipliers for direct, indirect, and induced effects from the development of a primary hard-rock mineral industry.

Area of Study:

Coastal states from Maryland to Florida.

Products:

Interim reports and a final report.

Justification:

Importance of the study to Minerals Management Service (MMS) Decisionmaking:

The information would be necessary in the preparation of future EIS's for hard-mineral lease sales.

Date Information Required and Decision Involved:

Information is required before any hard-mineral lease sales in the Atlantic OCS Region.

Current Status of Information on this Topic:

This is a new study of a frontier industry. While some of the information gathered for oil and gas development, fisheries, mining in other areas, and other offshore industries will be applicable to mining in the Atlantic, much of the information required will be unknown, necessitating empirical data collection.

Applicability of Information to Issues of Regional or Programmatic Concern:

The information gathered for this study is needed for OCS activities in the applicable planning areas. Much of the information will be applicable to mining of shelf resources in other regions as well.

SECTION V

REGIONAL TECHNICAL WORKING GROUP (RTWG)

DRAFT RECOMMENDATIONS FOR FY 1988

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SUMMARY OF SECTION V

A. Attendees at RTWG Environmental Studies Work Session April 23, 1986:

Ms. Patricia Hughes, MA
Mr. J. B. Jackson, VA
Ms. Elizabeth Lowe, NY
Mr. William Marshall, SC
Mr. Murice Rinkel, FL
Mr. Carl Sullivan, AFS
Mr. Timothy Sullivan, MMS
Dr. Robert Miller, MMS
Mr. Fred Gray, MMS

Contents (page 56 to 67):
- Agenda
- Events subsequent to last meeting
- FY 1987 Studies--Priority Ranking
- FY 1987 Studies--Discussion
- FY 1988 Studies--Continuing Studies
- Significant Active Studies--Discussions
- FY 1988 Studies--New Studies

B. Draft Recommendations for the MMS FY 1988 Environmental Studies Plan by the Subcommittee on Environmental Studies (page 68 to 71):

Ranking	Number of Studies
High	4
Medium	2
Low	2
Not Recommended	2

All continuing studies were accepted by the Subcommittee.

Two resolutions adopted for consideration at the RTWG Plenary Session regarding:

1. Commercial exploitation of OCS hard-mineral resources, and
2. U.S./Canadian shared jurisdiction over Georges Bank.

C. RTWG--Plenary Session, April 24, 1986, Draft Meeting Minutes (page 72 to 84):

The Draft Recommendations, as amended, for FY 1988 Environmental Studies Plan by the Subcommittee on Environmental Studies was endorsed by the plenary session, as were the two resolutions.

D. Additional Recommendations Received (page 85 to 96):

RTWG	Member	Date
NARTWG	Ms. Brenda Boleyn	4/21/86
NARTWG	Ms. Patricia Hughes	5/7/86
SARTWG	Mr. Murice Rinkel	4/30/86
SARTWG	Mr. Murice Rinkel	5/8/86

Minerals Management Service

Atlantic OCS Region

Regional Technical Working Group

Environmental Studies Work Session

April 23, 1986

AGENDA

FY 1988 STUDIES PLANNING MEETING

ATLANTIC OCS REGION

ATLANTIC REGION

10:00 A.M.	Welcome	Weetman/Ainger
10:05 A.M.	Opening Remarks	Sullivan and Co-chairs
10:15 A.M.	Status of FY 1987 RTWG Recommendations	Sullivan
10:30 A.M.	Active/Planned North Atlantic Studies	Miller
10:45 A.M.	Active and Planned Mid and South Atlantic Studies	Lane
11:15 A.M.	Open Discussion	All
12:00	Lunch	
12:30 P.M.	Resume: Each RTWG drafts FY 1988 recommendation with typing support	RTWG's
3:00 P.M.	Review final typed recommendations	RTWG's
4:00 P.M.	Discussion and adjourn	All

Regional Technical Working Group - Environmental Studies Working Sessions

Events Since Our Last Meeting

- March 1985 - Environmental Studies Working Sessions

- April 30, 1985 - Headquarters Guidelines for FY 1986 Studies:

1. "No new starts are to be approved in the Atlantic Region due to the reduced interest in that area, unless the study has broad generic value to the program."

Result: Site-Specific Monitoring of Marine Mammal Activity in the Atlantic OCS Lease Sale Areas - Year 2. This study is a resubmittal of the study deferred in FY 1985 and is not a Year 2 effort. Unless serious industry interest were to develop there are higher priorities in other areas, and in any case the proposed lease sale schedule does not require its funding in FY 1986. Under present circumstances the only type of cetacean studies which should be supported in the Atlantic Region are those which synthesize existing data, or those which have broad program applicability. This study should be deferred again this year.

2. "For the same reason, all Atlantic Region studies currently underway are to be scrutinized for opportunities to decrease the level of effort in FY 1986 studies in areas of very low interest.

Result: "Characterization and monitoring of benthic communities in areas of the continental slope and rise that are subject to oil and gas operations (South Atlantic Year 4). Of all the presently funded Atlantic Region biological field studies, this one is the most amendable to restructuring. Originally scheduled for four years of field collections directed towards evaluating operational impacts, the study has been redesigned to collect baseline information. We see no need for the fourth year of field collections directed towards evaluating operational impacts, the study has been redesigned to collect baseline information. We see no need for the fourth year of field work, and recommend that that portion of the project be cancelled and the activities for year 5 (synthesis and evaluating) be moved forward. This should result in a reduction in the funding level from $865,302 to approximately $500,000."

3. "All regions must be represented on the study list at a level of effort which reflects the level of activity in the regions."

Result: Atlantic Region Studies budget was lowest of all Regions for FY 1986.

- 5-year studies plan
    - What
    - When
    - How

- Draft FY 1987 Regional Studies Plan
    - Additional studies, how come?

- February 1986
    - Final FY 1987 Regional Studies Plan

- March 1986
    - Charleston
    - 1987 National Studies List
    - How did we do? (See Attachment)

- July 1986
    - Draft FY 1988 Regional Studies Plan

- February 1987
    - Final FY 1988 Regional Studies Plan

PROPOSED ATLANTIC OCS REGION
ENVIRONMENTAL STUDIES FOR FY 1987
PRIORITY RANKING

	Study Title	Ranking	Class	March 1986
1.	Site-Specific Monitoring of Marine Mammal Activity in the Atlantic OCS Lease Sale Areas	A1B1	1	Yes
2.	Implementation of North Carolina Memorandum of Understanding Technical Panel Recommendations - Gulf Stream Dynamics	A1B1	1	Yes
3.	Impacts of Oil and Gas Operations on Fisheries	A2B1	2	Yes
4.	Effects of Hydrocarbon Bioaccumulation on Marine Mammals	A2B1	2	Yes
5.*	Overall Plan for Future Atlantic OCS Region Studies	A2B1	2	Yes
6.	Characterization and Monitoring of Benthic Communities Areas of the Continental Slope and Rise that are Subject to Oil and Gas Operations Part A (North and Mid-Atlantic)	A2B1	2	Yes
7.	Analysis of Trace Metals in Support of Deepwater Benthic Characterization and Monitoring Studies	A2B1	2	Yes
8.	Development of a Tag to Monitor Migratory Patterns and Habitat Use of Marine Mammals	A2B1	2	Yes
9.	Identification and Characterization of Oculina Communities on the South Atlantic OCS	A2B2	4	No
10.	Published Synthesis of Information of the "Effects of Oil on Marine Mammals"	A3B1	5	Yes
11.	Summary of Available Environmental Information for the Florida Straits Area	A3B1	5	Yes
12.*	Synthesis of Information on the Effects of Noise on Marine Mammals	A3B2	6	Yes
13.*	Characterization of Benthic Communities and Identification of Trophic Linkages to Fisheries Resources in OCS Regions	A3B2	6	Yes

* Studies nominated by Atlantic Region as per April 30, 1985, guidance from Headquarters.

Studies 5, 12, and 13 are new studies in FY 1987

The FY 1987

"No's" and Why

- Identification and Characterization of *Oculina* Communities on the South Atlantic OCS — A2B2 (Class 4)

  MMS Scientific Committee comment:

  "Because of the considerable efforts already expended on live bottom studies in the South Atlantic, this study does not seem justified (see comments above for Pacific Region study No. 10). It certainly does not seem to warrant an A2 designation."

  MMS Headquarters comment:

  "Reduce ranking to A4B3. This study is not directly linked to any specific sale event, nor is it a major issue."

- Summary of Available Environmental Information for the Florida Straits Area — A3B1 (Class 5)

  MMS Scientific Committee comment:

  "No lease sales are planned for this area in the proposed 5-year leasing plan, thus how could this be classed B1? This study should be withheld until such time that lease sales are proposed for this planning area."

  MMS Headquarters comment:

  "Delete, no need for any information on straits of Florida. Reduce any Straits of Florida data from FY 1986 study as well."

- Study proposed by MARTWG (Carl Sullivan)

  Impact on the Benthic Communities of Commercial Fishing and Dredging of Bottom Finfish and Shellfish on the OCS to provide Baseline Data for Comparison with Impacts of Oil and Gas Operations.

Objectives

1. Describe the location, extent, and frequency of bottom disturbance by commercial fishing operations.
2. Define the rate of recolonization of these disturbed areas and the type of benthic communities which develop in those disturbed areas.
3. Compare these recolonized areas with a relatively undisturbed control area of the continental shelf.
4. Provide a basis for comparative analysis of the extent of bottom disturbances from commercial fishing operations with the expected amount of disturbance from oil and gas operations.

This study was not nominated by the Atlantic Region. Not perceived to be within MMS mission because study does little to quantify or assess the environmental impacts of OCS oil and gas operations.

Continuing Studies FY 1988

(Not prioritized)

1. Site-Specific Monitoring of Marine Mammal Activity in the Atlantic OCS Lease Sale Areas
2. Implementation of North Carolina Memorandum of Understanding Technical Panel Recommendations - Gulf Stream Dynamics
3. Impacts of Oil and Gas Operations on Fisheries
4. Effects of Hydrocarbon Bioaccumulation in Marine Mammals
5. Development of a Tag to Monitor Migratory Patterns and Habitat Use of Marine Mammals
6. Published Synthesis of Information on the "Effects of Oil on Marine Mammals"
7. Synthesis of Information on the "Effects of Noise on Marine Mammals"
8. Characterization of Benthic Communities and Identification of Trophic Linkages to Fisheries Resources in OCS Regions

Significant Active Studies

- North Atlantic

  North Atlantic Slope and Canyon Study

  --Draft Final Report, July 1986
  --Ends FY 1986

- Mid-Atlantic

  1. Study of Physical Processes on the U.S. Mid-Atlantic Continental Slope and Rise (MASARS)

     --All field work complete, May 1986
     --Draft Final Report, July 1986
     --Final Report, September 1986

  2. Blake Plateau Current Measurement Study

     --All field work complete, July 1985
     --Draft Final Report in review
     --Ends FY 1986

  3. Florida Atlantic Coast Transport Study (FACTS)

     --Draft Final Report, March 1986

- Generic

  1. Study of the Effects of Oil on Marine Turtles

     --Draft Final Report, May 1986

Partial List

New FY 1988 Topics
(not prioritized)

- Evaluation of Depositional Environments in Submarine Canyons of the North Atlantic Continental Slope
- Use of Satellite Tracked Drifting Buoys to Validate OSRA Predictions
- Synthesis of Information on the Effects and Impacts of OCS Oil and Gas Activities on Coastal and Marine Birds
- Assessing Onshore Impacts of OCS Oil and Gas Development
- Synthesis of Existing Economic Information on the Development of Hard Minerals on the OCS
- Environmental Impacts of Marine Mining
- Update Data Base on Historic Shipwrecks

NARTWG Recommendation:

MMS amend the FY 1987 studies program to allow for the identification of the spatial and depth variability of barium on Georges Bank.

This would involve:

- Collection of core samples at the two drill sites subject to the Georges Bank Monitoring Program; and barium analysis of these cores and some existing samples.

If an existing or proposed study cannot be amended the NARTWG this study for the FY 88 program.

Mid-Atlantic Recommendation:

Issue of Concern:

The impacts on benthic communities of OCS activities (pipelining, hard mineral development, etc.) are unknown and need to be studied.

Study Title:

Impact on the benthic communities of commercial fishing and dredging of bottom finfish and shellfish on the OCS to provide baseline data for comparison with impacts of OCS operations, particularly hard mineral production.

Objectives:

Same as title

Area of Study:

Mid-Atlantic OCS

Description of Study (narrative):

1. Describe the location, extent and frequency of bottom disturbance by commercial fishing operations.

2. Define the rate of recolonization of these disturbed areas and the type of benthic communities which develop in those disturbed areas.

3. Compare these recolonized areas with a relatively undisturbed control area of the OCS.

Draft SARTWG Recommendations for FY 88

- Reiterate SARTWG Environmental Studies Recommendations for FY 87:

  IIa. Productivity and Recolonization of, and the Effects of Sediment Transport on, the Dominant Sessile Fauna of the OCS.

  IIb. Survey of the Occurrence and Distribution of Oculina Coral Reef Communities of the South Atlantic Shelf.

- Reiterate recommendation for the extension to the South Atlantic of the Characterization and Monitoring of Benthic Biological Communities of the Continental Slope and Rise that are subject to OCS oil and gas operations.

- Continue FACTS, Second Year.

DRAFT RECOMMENDATIONS
FOR THE
MMS FY 1988 ENVIRONMENTAL STUDIES PLAN
BY THE
SUBCOMMITTEE ON ENVIRONMENTAL STUDIES
ATLANTIC REGIONAL TECHNICAL WORKING GROUPS (ARTWG's)

On April 23, 1986, an Environmental Studies Work Session by the Subcommittee was conducted in the MMS Atlantic Regional Office for the purpose of drafting recommendations for the MMS FY 1988 Environmental Studies Plan. These draft recommendations are being distributed to all Atlantic RTWG's, for review, comment and adoption. Those in attendance were:

RTWG's

Ms. Patricia Hughes, Massachusetts
Mr. J.B. Jackson, Virginia
Ms. Elizabeth Lowe, New York
Mr. William Marshall, South Carolina
Mr. Murice Rinkel, Florida
Mr. Carl Sullivan, Executive Director, American Fisheries Society

MMS

Staff Member	Duties
Mr. Timothy F. Sullivan	Chief, Management and Administration of Studies Section
Dr. Robert Miller	Physical Scientist
Mr. Fred Gray	Sr. Mineral Leasing Specialist

The attached information package was distributed to each committee member at the meeting.

During the morning session, the MMS presented summaries of active studies and discussed proposed studies for FY 1987 and 1988. Questions and discussion followed each presentation.

During the afternoon session the subcommittee developed a prioritized listing of proposed new studies for FY 1988. This included studies proposed by MMS and others proposed by the working group. They are as follows:

The Subcommittee unanimously recommends the following studies and rankings:

HIGH

- Use of Satellite Tracked Drifting Buoys to Validate OSRA Predictions.

  The Subcommittee feels this study will provide the best predictive data on the transport of spilled oil, and recommends that the drifters be widely distributed on the Atlantic OCS.

- Onshore and Offshore environmental impacts of marine mining of hard minerals, including sand and gravel.

- Environmental impacts of the use of dispersants on marine and estuarine plants and animals.

- Environmental impacts of mineral oil-based drilling muds.

MEDIUM

- Synthesis of existing information on the socio-economic impacts of the development of OCS hard minerals.

- Evaluation of the physical oceanography in submarine canyons on the Atlantic continental slope.

LOW

- Synthesis of information on the effects and impacts of OCS oil and gas activities on coastal and marine birds.

  The subcommittee recommends that the Studies programs in other OCS Regions be examined to determine whether this study is proposed elsewhere. If the study is funded in another region, this should be removed from the Atlantic list. If not, it should remain on the FY 88 studies list.

- Evaluation of burial vs. non-burial of pipelines and impacts on commercial fishing operations.

NOT RECOMMENDED

1. Assessing Onshore Impacts of OCS oil and gas development.

   The Subcommittee believes this information is valuable; however, it should be generated when a discovery is made in the Atlantic OCS.

2. Update Data Base on Historic Shipwrecks.

   The Subcommittee was not persuaded of the necessity for MMS to collect this information.

In addition the working group accepted the continuation of the following continuing studies for FY 1988.

- Site-Specific Monitoring of Marine Mammal Activity in the Atlantic OCS Lease Sale Areas.

- Implementation of North Carolina Memorandum of Understanding Technical Panel Recommendations - Gulf Stream Dynamics.

- Impacts of Oil and Gas Operations on Fisheries.

- Effects of Hydrocarbon Bioaccumulation in Marine Mammals.

- Development of a Tag to Monitor Migratory Patterns and Habitat Use of Marine Mammals.

- Published Synthesis of Information on the "Effects of Oil on Marine Mammals."

- Synthesis of Information on the "Effects of Noise on Marine Mammals."

- Characterization of Benthic Communities and Identification of Trophic Linkages to Fisheries Resources in OCS Regions.

The following resolutions were adopted by the subcommittee and are recommended for adoption in the plenary session on April 24, 1986.

I. Whereas: There is growing interest in the commercial exploitation of OCS hard mineral resources; and

Whereas: Hard mineral resources includes sand and gravel, phosphates, limestone, manganese nodules, cobalt crusts, trace metals, etc.; and

Whereas: The mining, transport and processing of offshore hard mineral resource poses a potential adverse impact to the marine and coastal environment;

Now therefore be it resolved that the Environmental Studies Subcommittee of the Atlantic Regional Technical Working Group unanimously petitions the full Atlantic Regional Technical Working Group to place this issue at the top of its environmental studies agenda.

II. Whereas: The U.S. and Canada now share jurisdiction over Georges Bank;

Whereas: The U.S. and Canada have different regulatory programs governing OCS oil and gas activities; and

Whereas: Environmental impacts of drilling activity on Georges Bank can affect the whole bank given the water circulation patterns;

Now therefore, we strongly recommend that the U.S. Department of the Interior Minerals Management Service request the Department of State of establish a formal consultation process with both the Canadian federal and provincial government of Nova Scotia for the purposes of reviewing environmental impact information, reviewing regulatory approaches and developing joint environmental studies.

Minerals Management Service

North, Mid-, and South Atlantic Regional Technical Working Groups

Plenary Session - April 24, 1986

Vienna, Virginia

Draft Meeting Minutes

This meeting of the Regional Technical Working Groups (RTWGs) was held in accordance with the Federal Register Notice of March 26,1986 (Appendix I). The meeting was attended by members (or alternates) and visitors listed in Appendices II and III, and was chaired by Mr. Bruce Weetman, Minerals Management Service (MMS). An annotated copy of the official agenda is attached as Appendix IV.

These minutes serve as an accurate description of each matter discussed and the resolutions, if any, made by the committee; they are not intended to substitute for detailed notes kept by each committee member and attending MMS staff. Length of summaries is not necessarily proportionate to the duration of the presentations, which is indicated on the annotated agenda.

April 24, 1986

Mr. Weetman opened the meeting at 9:06 am by asking members and alternates to introduce themselves in order around the table. Ms. Katrina Van Dusen is a new member, replacing Mr. Charles Colgan as the representative of Maine. Ms. Donna Moffitt, North Carolina, has received the Loeb Fellowship in Advanced Environmental Studies at Harvard University and will be on a half-year sabbatical.

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Under Agenda Item I, MMS Program Update, Mr. Weetman stated that the Atlantic OCS Region is reducing staff size, reflecting the lack of activity on the Atlantic OCS. Mr. Weetman presented a new organizational chart for the Atlantic OCS Region.

Mr. Paul Stang, MMS, then presented Agenda Item II, Proposed 5-Year Offshore Oil and Gas Leasing Program and Draft Environmental Impact Statement. Mr. Stang said the Proposed Program was published in February, 1986, and he expects the Proposed Final Program will be published in early 1987.

Mr. Stang compared highlights of the previous Draft Proposed Program and the Proposed Program, noting that comments from State, local, private, and other sectors had been incorporated into the Proposed Program.

Discussing industry interest in OCS planning areas, Mr. Stang presented Table 1 of the Proposed Program (Appendix V). In separate rankings conducted in 1984 and 1985, industry interest in the North, Mid-, and South Atlantic areas remained about the same, placing these areas about midway between the highest and lowest ranked OCS areas.

Mr. Stang described "conditional resources" as resource estimates which are projected based on the assumption that resources do exist in the area being analyzed. Since conditional resources may therefore be larger than the true amount present, further analysis must account for this by multiplying conditional resources by the probability of actual occurrence.

Turning to Figure 1 of the Proposed Program, "Oil Price Scenarios" (Appendix VI), Mr. Stang explained that two projections were developed based on initial prices of $19 and $29 per barrel. Since this study was done, oil prices have in fact dropped sharply. Mr. Stang's objective now will be to project a reasonable set of future price paths, using a lower set of low-end values. Noting the discrepancy between current prices and his previous analysis, Mr. Stang explained that accurate prediction of near term prices is not as important as long term projections, since the latter is what industry bases their leasing decisions upon.

Mr. Stang then discussed Table 2 of the Proposed Program, "Estimates of Unleased Undiscovered OCS Oil and Gas Resources" (Appendix VII), i.e. "leasable resources." When estimates are based on $19 per barrel rather than $29 per barrel, the amount of leasable resources in the Atlantic planning areas is roughly halved. Mr. Stang said that MMS tends to reflect the higher price projections of leasable resources when developing a leasing schedule, because this preserves the option to hold more lease sales. If MMS assumed that leasable resources would be low, and developed a more limited leasing schedule, and if industry interest then turned out to be higher than expected, it would not be possible to offer additonal lease sales under the 5-Year Plan.

Net social value, said Mr. Stang, is reflected in Table 3 of the Proposed Program, "Benefits and Costs of Leasing and Producing OCS Oil and Gas" (Appendix VIII). Net benefits are calculated as: [leasable resources] times [dollar value of oil], minus [costs of exploration, production, and transportation]. Costs include environmental and social costs, such as the various costs arising from oil spills: damage to fisheries, tourism losses, the loss of the oil itself, etc. Mr. Stang noted that projections at $19 per barrel versus $29 per barrel show drops in net benefits greater than half. This is because not only has the leasable resources diminished, but the recoverable value of the oil has diminished as well.

Using Table 3, Mr. Stang delineated high, mid, and low value ranges of net benefits. "High" is Central and Western Gulf of Mexico, "low" is Kodiak, Hope Basin, Shumagin, and Cook Inlet, and "medium" is everything remaining between these two extremes on Table 3. Mr. Stang said lease sale frequency was correlated to these ranges, and therefore the Atlantic planning areas were proposed for medium leasing frequency. An exception is the Straits of Florida, which will require further analysis before being scheduled.

Dr. Arthur Socolow, Pennsylvania, observed that the net benfits in Table 3 ought to be recalculated in light of the present decline in oil prices. Mr. Stang agreed, but stated that this would not change the relative ranking of high, medium, and low.

Mr. Stang said the three major planning areas will have standard sales with triannual or less frequent rates. However, "frontier" provisions are proposed for thes sales, so that calls for information will be made four months prior to each sale. A lack of industry interest at that time would result in canceling the sale. "Supplemental" sales are also being proposed, in which drainage and other special development blocks would be reoffered in national sales.

Mr. Stang concluded his presentation by describing a number of proposed sub-area leasing deferrals and a 15 mile wide nearshore buffer zone which is under further consideration for deferral.

During a question period, several members asked for more information regarding the proposed 15 mile buffer. Ms. Patricia Hughes, Massachusetts, felt that as a technician making recommendations to her Governor she needed more information on this subject. Mr. Stang responded that subarea deletion proposals were covered in the Secretarial Issue Document and the Draft Environment Impact Statement.

Ms. Moffitt asked why the deletion zone off Florida was wider than the uniform buffer off the other States. Mr. Stang responded that Florida was unique in that its southern end is more geographically remote than other States and would be more demonstrably the only State affected by nearby oil activities. Futhermore, a large number of comments have been received by MMS regarding the Straits of Florida. Ms. Moffitt countered that a number of arguments could be made that North Carolina's coastal area is also unique and deserving of consideration.

In response to a question by Dr. Socolow, Mr. Stang stated the deadline for comments on the Proposed Program is May 8, 1986, as described in the Federal Register.

After a brief recess, Agenda Item II continued. However, instead of a round table opportunity for comments, it was decided to hold a general discussion.

Mr. J.B. Jackson, Jr., Virginia, noted that the proposed 15-mile buffer was not "a best common denominator" of various State comments. He stated that New York, Maryland, New Jersy, and Virginia had each proposed roughly 50-mile exclusion zones. Mr. Kenneth Schwarz, Maryland, stated that Maryland did not request exclusion within 50 miles of shore but rather requested tract-specific leasing in that zone. Mr. Schwarz felt that only with tract specific, as opposed to area-wide leasing, could the States know what tracts were up for sale.

A discussion ensued regarding the processes of tract-specific and area-wide leasing, and Mr. Weetman and Mr. Stang responded to Mr. Schwarz that area-wide leasing deferrals may begin as early as the Call for Information stage. Deferral, which leads to "focusing," is an "iterative" process, said Mr. Stang, and specific deferrals are publicized as soon as they are made.

Mr. Carl Sullivan, American Fisheries Society, complimented MMS on the development of the Proposed Program. He felt that the flexibility of the program will prove vital, and urged an absolute minimum of tract deferrals. Mr. Sullivan stated the environmental risk of importing refined oil is much greater than producing our own OCS oil, and he noted the excellent OCS safety record since 1969.

Mr. Murice Rinkel, Florida, asked if negotiations were underway with the Department of Defense to defer the entire NASA/DOD footprint area near Cape Canaveral. Mr. Weetman agreed to find out the date of the most recent discussions between MMS and NASA concerning this.

Ms. Susan Peterson asked what effect a possible rise in oil prices would have on the Proposed Final Program or on future leasing. Mr. Stang replied that the final program should be flexible enough to handle whatever changes occur in oil prices, and that the Secretary of the Interior always has the option to revise whatever program is current.

Several questions concerning the analysis of net social benefits and costs arose. Mr. Bruce Vild, Rhode Island, asked if State infrastructure costs for monitoring and administering exploration activities were included in social costs. Mr. Stang recalled that they were described qualitatively, but not forced into the cost model of production. Ms. Ruth Ehinger, New Jersey, asked if spatial exclusion of pelagic long line fisheries was included in social costs, and Mr. Stang agreed to research this.

In response to a question from Ms. Hughes, Mr. Stang, stated that if a "frontier" sale is deferred due to no industry interest at the sale time, the sale can be held later in the 5-year schedule. Mr. Stang agreed to research whether a deferred sale could be reissued as an independent action or as part of the MMS annual review.

Responding to a question by Ms. Elizabeth Lowe, New York, Mr. Weetman stated that the proposed 15-mile buffer zone was for the 5-year program in general. Additional deferrals, such as a 50-mile zone, could be added to specific sales.

In response to a question by Dr. Socolow, Mr. Raleigh Kreuz, American Petroleum Institute (API), could not predict industry's long range leasing ambitions in the Atlantic. Mr. Kreuz and Dr. Harland Johnson, API, stated that industry finds it as difficult as everyone else to predict oil price trends. They both felt that a fixed 5-year leasing program helps their leasing analysis by removing a major element of uncertainty.

Ms. Hughes pointed out that the Proposed Program did not evaluate the MMS costs of budget and staffing to support the OCS program. Mr. Stang replied that although he had researched this, it was his understanding that it need not be considered in the Proposed Program. However, it will be published in the Proposed Final Program. Ms. Hughes stated that it is important to know if adequate funds are available for post-least administration.

Ms. Katrina Van Dusen, Maine, noted the history of States vs. Interior litigation lease sales, and stated that it would be helpful if Interior published more specific criteria and guidelines concerning how subarea deferrals are made and how focused leasing is envisioned in general.

After a lunch break, Mr. Jackson gave a brief report on the March 1986 OCS Policy Committee Meeting in Charleston, South Carolina. Mr. Jackson stated that Mr. Woody Dunlop of Brooklyn Union Gas was elected Chairman and Dr. Ernest Mancini of Alabama was elected Vice Chairman. The next meeting date has been set for October 29-30, 1986, in Norfolk, Virginia. A main area of discussion, said Mr. Jackson, was the 5-year Proposed Program, and there was also considerable discussion on how the environmental studies program will tie into it.

Ms. Moffitt supplemented the OCS Policy Committee report by describing a panel discussion which addressed non-energy (hard) minerals. State/MMS hard minerals task forces were discussed, and Ms. Moffitt described preparations by North Carolina for development of a cooperative agreement.

Mr. Jackson then began Agenda Item III, MMS Fiscal Year 1988 Environmental Studies Program Recommendations, by describing the Environmental Studies Work Sessions (ESWS) which took place on the previous day, April 23. Workers at the ESWS were: North Atlantic RTWG - Ms. Patricia Hughes and Ms. Elizabeth Lowe; Mid-Atlantic RTWG - Mr. Carl Sullivan and Mr. J. B. Jackson, Jr.; South Atlantic RTWG - Mr. Maurice Rinkel and Mr. Williams Marshall. The ESWS also included Mr. Tim Sullivan, MMS Atlantic OCS Region Chief of Environmental Studies, and some of his staff: Dr. Robert Miller and Mr. Fred Gray. Mr. Jackson reviewed a document prepared at the ESWS entitled, "Draft Recommendations for the MMS FY 1988 Environmental Studies Plan by the Subcommittee on Environmental Studies Atlantic Regional Technical Working Groups (ARTWG's)" (Appendix IX, referred to hereafter as the "Draft Recommendations." These recommendations include another document entitled "Regional Technical Working Group Environmental Studies Work Session, April 23, 1986.") Mr. Jackson reported that the ESWS reviewed studies proposed by MMS and also formulated its own proposed studies. The Draft Recommendations divide the studies into four groups: High, Medium, Low, and Not Recommended. Within each group, priority ranking was not assigned. In addition, the Draft Recommendations accept the continuation into Fiscal Year 1988 of eight other studies. Mr. Jackson stressed that "accept" was used rather than "endorse" because the ESWS did not have time to analyze and prioritize these continuing studies. Mr. Jackson stated that the Draft Recommendations ended with two resolutions (which are discussed further below in these minutes).

A discussion ensued concerning two of the High group studies: "Environmental impacts of the use of dispersants on marine and estuarine plants and animals," and "Environmental impacts of mineral oil-based drilling muds." Dr. Johnson felt that a sizable body of research literature exists on the impacts of dispersants, and that oil-based muds are currently being addressed in the Gulf of Mexico and other areas and was not an issue in the Atlantic. Mr. Kreuz agreed that much research has already been done concerning oil dispersants, and felt it was unnecessary to do more in the Atlantic. Mr. Maurice Jones noted that discharge of oil-based muds is prohibited, and also noted that research is currently underway on the use of oil as a constituent of water-based muds. Mr. Rinkel stated the request for these two studied came from him.

Regarding the dispersants study, he clarified the objective as being to evaluate the potential impacts of specific EPA approved dispersants on specific plants and animals in specific leasing areas. (Although unstated, the implication of this was that the Atlantic leasing areas would be studied.

In discussions between Mr. Rinkel and Dr. Johnson, it became clear that what Mr. Rinkel had meant to propose regarding oil-based muds would correctly be described as a study of the environmental impacts of discharge of water-based muds which had trace amounts of oil added to handle problems such as stuck drill bits. It was agreed to change the wording of this recommended study and to flesh out the proposal (however, the committee was unable to do this before adjourning).

Mr. Jackson read Resolution Number 1 (see page 4 of the Appendix IX), which is a recommendation from the ESWS to the full RTWGs that they place the issue of hard minerals in the High group of recommended studies. Dr. Johnson questioned the need for such studies at this time, since he thought that hard minerals development on the Atlantic OCS was a long-range possibility. Although Dr. Johnson was addressing phosphates activities, Mr. Jackson pointed out that sand and gravel mining is, or will soon be taking place, and Mr. Hans Neuhauser, Georgia Conservancy, pointed out that in December 1985, MMS issued two permits for exploration for ilmenite and related substances. Other members felt that hard minerals exploration may occur in the Atlantic sooner than any more oil and gas exploration. Dr. Richard Benson, Delaware, asked the group whether the proposed hard minerals studies should be funded at the level of a preliminary literature review or at the level of impact potential experiments. There was no discussion regarding this, and the RTWGs then voted in favor of the resolution 18 to 5.

Mr. Jackson then read Resolution Number 2 (see page 4 of the Appendix IX), which was a recommendation from the RTWGs to the Department of the Interior to establish formal consultation with Canada regarding OCS activities. A discussion ensued regarding the legal process of establishing consultation with Canada, and an amended resolution was set forth as follows:

> Whereas: The U.S. and Canada now share jurisdiction over Georges Bank; and
>
> Whereas: The U.S. and Canada have different regulatory programs governing OCS oil and gas activities; and
>
> Whereas: Environmental impacts of drilling activity on Georges Bank can affect the whole Bank given the water circulation patterns;
>
> Now, therefore, we strongly recommend that the United States Department of the Interior, Minerals Management Service, request the Department of State to establish a formal consultation process with both the Canadian Federal and Provincial Government of Nova Scotia for the purposes of reviewing environmental impact information, reviewing regulatory approaches and developing joint environmental studies.

This resolution was adopted by the RTWGs by a vote of 20 to 3.

At this point, the plenary session recessed for 18 minutes so that the North, Mid-, and South Atlantic RTWGs could discuss their environmental studies recommendations in separate groups.

After the break, Ms. Moffitt reported that the South Atlantic RTWG unanimously endorsed pages 2-3 of the Draft Recommendation (see Appendix IX), and they also endorsed the page entitled, "Draft SARTWG Recommendations for FY 88."

Mr. Jackson then reported that the Mid-Atlantic RTWG endorsed the Draft Recommendations study entitled, "Impact on the benthic communities of commercial fishing and dredging of bottom finfish and shellfish on the OCS to provide baseline data for comparison with impacts of OCS operations, particularly hard mineral production." After a brief discussion, Mr. Jackson also stated that the Mid-Atlantic RTWG endorsed pages 2-3 of the Draft Recommendation.

Ms. Hughes then reported that the North Atlantic RTWG voted 9 to 2 in favor of the Draft Recommendations study entitled, "Collection of core samples at the two drill sites subject to the Georges Bank Monitoring Program; and barium analysis of these cores and some existing samples." Ms. Hughes reported that the following amendment was adopted for addition to this study recommendation:

> We're requesting that MMS amend a FY 87 study to allow for the identification of the spatial and depth variability of barium on Georges Bank. This would involve collection of core samples at the two drill sites subject to the Georges Bank Monitoring Program, barium analysis of these cores and some existing samples and an attempt to identify the sources of barium. If the existing or proposed study cannot be amended, the working group would like to see this as a FY 88 study.

The entire plenary session then voted 19 to 3 to adopt the Draft Recommendations, as amended, as their final recommendations to MMS.

Dr. Socolow then announced that he will soon be leaving his position in Pennsylvania, and expressed his appreciation and enjoyment of working with the OCS committees.

Moving to Agenda Item IV, Public Comment, Dr. John Teal, Woods Hole Oceanographic Institution, arose to speak on behalf of the OCS Scientific Committee. Dr. Teal stated that the National Academy of Sciences is presently conducting a review of knowledge of the effects of dispersants, and would probably publish a report in 1987. In light of this ongoing study, the Scientific Committee does not recommend a study of dispersants at this time, said Dr. Teal.

Under Agenda Item V, Summary of Action Items, Mr. Weetman listed action items that MMS should take following this meeting. These were: (1) At Mr. Rinkel's request, find out the date of the most recent discussions between MMS and NASA regarding deferral of the NASA/DOD footprint area near Cape Canaveral; (2) At Ms. Ehinger's request, find out if the Proposed Program included spacial exclusion of pelagic long line fisheries in the analysis of social costs; (3) For Ms. Hughes, publish in the Federal Register an analysis of staffing and administrative cost for the proposed 5-year program, before issuing the Proposed Final Program; (4) For Ms. Moffitt, find out if the Department of the Interior has joined in the Exxon versus Fischer litigation; (5) Forward Resolution Number 2 to the Associate Director for appropriate headquarters response; (6) Utilize the environmental studies recommendations as adopted by the RTWGs at this meeting.

The meeting adjourned at 3:01 p.m.

ADDITIONAL RECOMMENDATIONS RECIEVED

Ms. Brenda Boleyn page 86
Ms. Patricia Hughes page 88
Mr. Murice Rinkel page 89
Mr. Murice Rinkel page 94

The Association for the Preservation of Cape Cod, Inc.

P. O. Box 636
Orleans, Massachusetts 02653
617-255-4142

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To: Members North Atlantic RTWG, Minerals Mgt. Service

From: Brenda Boleyn, NARTWG
Rep. Assoc. Pres. Cape Cod BJ Boleyn

Date: 21 April 1986

Subject: Environmental Studies Work Session 4/23/86
Plenary Session, Atlantic Reg. Tech. Working Groups 4/24/86
Comments re Environmental Studies Program

It is a disappointment to me that I am unable to join you this week. I thank Pat Hughes for her kind offer to carry my comments -- in case they might be useful.

It seems apparent that -

- The budget available for environmental studies is going to pose a challenge for those who must set priorities.
- Industry interest in the North Atlantic has dropped off dramatically in the recent past.

Under these assumptions, we perceive a danger that studies in the North Atlantic may be targeted for sharp cutbacks.

Because the Georges Bank area is one of such extraordinary biological importance and because two North Atlantic sales are projected for the proposed 5-year leasing program, we hope that the value of continued studies will be stoutly defended and emphasized. As Mr. Bettencourt has recently reminded us, there are a number of companies with "long-term interests" in the North Atlantic. It would be unfortunate to lose the valuable continuity of data provided by our monitoring studies to date.

Especially important, we think, are the data to be gathered from the following four studies:

1. Long-term monitoring of benthic environments . . . in vicinity of Georges Bank.

   It is highly desirable to maintain the continuity of data provided by this study. And such a continuation would seem a natural tie-in to the next 2 studies mentioned here.

2. Impacts of Oil and Gas Operations on Fisheries

   This is of course the paramount concern for those most interested in the productivity of the Georges Bank. Hopefully to include fisheries of the benthos, e.g. lobsters, scallops, & others shellfish, as well as trophic linkages.

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3. Characterization & Monitoring of Benthic Communities in Areas of Continental Slope and Rise . . .

   The importance of this study, in our opinion, is that it represents the only deepwater study of biological processes on the slope and rise. We need this information as we become more interested in exploration of deepwater tracts and canyon areas.

4. Site-specific Monitoring of Marine Mammal Activity . . .

   We have an urgent need for as much information as we can garner regarding the migratory and feeding habits of these animals, especially the endangered right whale.

Have a good meeting. Your efforts are very much appreciated by this organization.

cc: Timothy F. Sullivan, Chief
Environmental Studies Section, MMS

Esther A. Snyder, Exec. Director
APCC

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Executive Office of Environmental Affairs
Coastal Zone Management
LEVERETT SALTONSTALL BUILDING
100 CAMBRIDGE STREET
BOSTON, MASS. 02202

EVALUATION OF PIPELINE CONSTRUCTION AND INSTALLATION METHODS AND THEIR IMPACTS ON COMMERCIAL FISHING OPERATIONS.

ISSUE/OBJECTIVES

Pipelines are environmentally preferable to tankers for transporting oil and gas ashore. Pipelines are buried and/or shrouded to protect them from damage that might be caused by fishing gear, and also to protect fishing gear from damage. There is some concern that burial and shrouding technologies used in the North Sea have not been as successful as hoped in protecting fishing gear from damage.

The objectives of this study are to evaluate pipeline construction and installation in others OCS regions, particularly the North Sea, to determine the most appropriate methods for minimizing impacts on commercial fishing operations conducted in the Atlantic.

IDENTIFICATION OF SPATIAL AND DEPTH VARIABILITY OF BARIUM ON GEORGES BANK.

ISSUE/OBJECTIVES:

Drilling on Georges Bank occured between July 1981 and September 1982. During this time, eight wells were drilled, and the discharges were subject to stringent restrictions: 30 bbl/hr., pre-diluted 10:1 at a depth of 10 meters below the surface. MMS funded a monitoring program to determine the fate and effects of drilling discharges on Georges Bank. Trace metal analyses were conducted at a number of site specific and regional stations on the Bank, and sampling has continued at a reduced level of effort at a few stations since 1984. At one of the rig-site specific stations sampled within the last year, there is still a signal of Barium in the fine fraction of subsurface sediments. This is suprising given the small number of wells drilled, the discharge restrictions, the dynamics of the environment and the amount of time that has elapsed since drilling ceased on the Bank. It would be very useful to determine the spatial distribution and variability with depth of barium on Georges Bank. This may provide information on the long term fate of barium from exploratory drilling operations, that is presently lacking from any monitoring program conducted on the U.S. OCS.

The study's purpose is to determine the spatial and depth variability of Barium at selected stations on Georges Bank. Cores need to be taken at some stations, and funds provided to analyze these and archived samples collected.

STATE OF FLORIDA
Office of the Governor
THE CAPITOL
TALLAHASSEE 32304

BOB GRAHAM
GOVERNOR

April 30, 1986

Mr. Timothy F. Sullivan
Minerals Management Service
Atlantic OCS Region
U. S. Department of the Interior
1951 Kidwell Drive, Suite 601
Vienna, Virginia 22180

Dear Tim:

At the April 24th meeting of the Subcommittee for the FY-88 Environmental Study Plan (ESP) we had an interesting discussion on how the 5-Year ESP should be related to the 5-year proposed oil and gas leasing program for January, 1987, to December, 1991. The discussion at the Regional Technical Working Group (RTWG) meeting on April 25th indicated that Minerals Management Service (MMS) has not deleted the North, Mid, and South Atlantic and the Straits of Florida from the proposed 5-Year Leasing Schedule.

As you will recall, the Subcommittee believed that our recommendations for the FY-88 plan should consider the proposed 5-Year Leasing Schedule which were presented on April 25th. We must assume and plan for the proposed sales in all three regions of the Atlantic and ensure that the data will be available for management decisions.

The Subcommittee recommended three new studies that would be used if drilling and/or production were to occur from these sales. I am sure both of us agree that there is a possibility that no sales will occur during the 5-Year Leasing Program in the Atlantic area; however, even under these conditions, these studies should be in place and available for the next 5-Year Leasing Schedule.

Two of these studies were proposed by the State of Florida and recommended by the Subcommite. You asked that study descriptions be compiled for your use. These study descriptions are attached.

Both of the studies are generic in nature and would be required regardless of whether sales occurred in the Atlantic regions as they are germane to drilling activities in other areas. In the descriptions I will stress the environmental features within our regions which should be considered in the studies. After the discussions with the RTWG, I am suggesting new titles for these studies which are more accurate and descriptive of the study requirement.

The two studies are "The toxicity of oil, chemical dispersed oil, and chemical dispersants to eggs and larvae of selected commercial and recreational fisheries species, seagrasses, and mangroves endemic to

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the Atlantic regions and the Straits of Florida" and "The environmental impacts of mineral oil additives to water-based drilling muds".

I will take a moment of discussion in regard to these studies and why I think they are important.

There are states that have wetlands, seagrasses, and mangroves facing the problem of how to contain a spill in a practical manner for drilling sites near to shore or under major current regimes. These might not be contained by mechanical means or have adequate response times that will allow the containment of the oil before it gets into the sensitive areas. This can also be true of open ocean spawning areas. The State of Florida in its Federal Consistency Certification is now requiring that the oil companies consider the use of dispersants in the oil spill contigency plans presented to the State.

In examining the data used by EPA and the studies performed by API many of the important animal and plant species have not been tested for the effects of dispersed oil or dispersants. I understand that MMS is having the National Academy of Science examine the literature on the use of dispersants. The Academy's report should be in the hands of MMS at the time of the funding of the FY-88 plan, and these results will be available to direct the scientific objectives of the study.

Mineral oils are now being recommended to replace diesel oils in the case of the sticking of bits or well problems, which require a lubricant. We are seeing their proposed use in drilling permits in the Eastern Gulf of Mexico. In talking with EPA there are no present rules or regulations covering their use or whether they can be discharged into the sea (personal communication today with Lloyd Wise of EPA). EPA is planning no in-house toxicity studies. Under the Memorandum of Understanding between MMS and EPA such studies can be recommended by EPA and funded by MMS. Since EPA is not recommending the studies, the State of Florida feels it must.

If you need additional input, please call me before May 9th because I will be out of town until the first of June.

Very truly yours

Rink

Murice O. Rinkel
State of Florida OCS Representative

MOR/rvf

cc: P. Johnson
Enc.

Study Description

Issue of Concern:

With the potential of oil and gas exploration in and near the shallow waters and in major current regimes of the Atlantic regions there exists the possible impact of oil and oil dispersants alone or in combination. There has been a movement towards the use of chemical dispersants for oil spills since the issuance of the final ruling on Sub-part H of the National Contingency Plan on July 18, 1984. The State of Florida has developed a Letter of Agreement among the EPA, the U. S. Coast Guard, and the State of Florida for the use of approved EPA dispersants. Other states are working on plans for the use of dispersants. In many cases dispersants might be the only method of preventing impacts on wetlands, fishing areas, seagrasses, and mangrove communities. The use of dispersants is being developed despite the fact that there are little data on the toxicity of the dispersants and dispersed oil on species of animal and plant life endemic to the Atlantic regions and the Straits of Florida. Other states need this toxicity data to expedite the drilling activities and the dispersant decision making process.

Study Title:

The toxicity of oil, chemical dispersed oil, and chemical dispersants to eggs and larvae of selected commercial and recreational fisheries species, seagrasses, and mangroves endemic to the Atlantic regions and the Straits of Florida.

Objectives:

The objective to this study is to investigate the toxic effects and related impacts of oil and oil dispersants to species endemic to the Atlantic regions and the Straits of Florida. The toxicity of oil, chemically dispersed oil, and dispersant to eggs and larvae of selected commercial and recreational fisheries species, seagrasses, and mangroves would be determined.

Area of Study:

This area should include all Atlantic regions and the Straits of Florida. If the Straits of Florida in the 5-Year Leasing Schedule of 1987 to 1991 includes portions of the Eastern Gulf of Mexico, the study should cover this region likewise.

Description of Study:

There is some literature concerning the toxicity of dispersants and dispersed oil on vegetation-seagrasses, mangroves, and Spartina. The National Academy of Science under contract with MMS is compiling literature concerning the toxicity of disperants and dispersed oil. The proposed schedule for release of the National Academy of Science report is the middle of 1987. The results of these studies should be used to describe the scope and objectives of the proposed study. Because of the scientific limitation on the results of toxicity studies in the open ocean, the work most likely will be performed in laboratories. MMS should work closely with the EPA Gulf Breeze Laboratory.

Study Description

Issue of Concern:

EPA has restricted the discharge of diesel oil additives in drilling operations in the Gulf of Mexico. If diesel oil is used as a lubricant for well problems, the drilling muds must be returned to shore for disposal at an approved dump site.

Industry in its requests for drilling permits is proposing mineral oil as an additive to water-based, drilling muds as a substitute for diesel oil. Up to the present time EPA has not formulated rules and regulations governing the discharge of mineral oils or whether they will have to be removed for disposal on shore.

EPA has not performed or scheduled any toxicity tests on the effects of mineral oils on the biota and water column of the ocean (personal communication - Lloyd Wise, EPA). Before rules and regulations are established and for drilling decisionmaking processes by the states, toxicity of mineral oils should be determined.

Study Title:

The environmental impacts of mineral oil additives to water-based drilling muds.

Objectives:

The objective of this study is to investigate the toxic effects and related impacts of mineral oil in water-based drilling muds to species endemic to the Atlantic region and the Straits of Florida. The toxicity of mineral oils to eggs and larvae of selected commercial and recreational fisheries species, seagrasses, wetlands, and mangroves should be determined.

Area of Study:

This area should include all Atlantic regions and the Straits of Florida. If the Straits of Florida in the 5-Year Leasing Shcedule of 1987 to 1991 includes portions of the Eastern Gulf of Mexico, the study should cover this region likewise.

Description of Study:

The National Academy of Science under contract to MMS is compiling literature on dispersed oils and dispersants. The Academy should be asked to examine the literature and synthesize existing data, if any, on the toxicity of mineral oils on species endemic to the Atlantic regions and the Straits of Florida. The results of these studies should be used to describe the scope and objectives of this study. Because of the scientific limitation on the rsults of toxicity studies in the open ocean, the work most likely will be performed in laboratories. MMS should work closely with the EPA Gulf Breeze Laboratory.

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FLORIDA INSTITUTE OF OCEANOGRAPHY
830 First Street, South, St. Petersburg, Florida 33701
Telephone (813) 893-9100

May 8, 1986

Mr. Timothy F. Sullivan
Minerals Management Service
Atlantic OCS Region
U. S. Department of the Interior
1951 Kidwell Drive, Suite 601
Vienna, Virginia 22180

Dear Tim:

Enclosed please find a note from Hans in regard to the possible impacts of dispersants on whales which should probably be added to the discriptive material from the study.

Very truly yours,

Murice O. Rinkel
State of Florida OCS Representative

MOR/rvf

Enc.

University of Florida Florida State University Florida A. & M. University University of South Florida Florida Atlantic University
University of West Florida University of Central Florida University of North Florida Florida International University Florida Sea Grant College
University of Miami, Rosenstiel School of Marine and Atmospheric Science Florida Department of Natural Resources, Bureau of Marine Science and Technology

The Georgia Conservancy

COASTAL OFFICE

711 SANDTOWN ROAD SAVANNAH, GEORGIA 31410 912/897-6462

April 30

Dear Rink,

Re: the study on the environmental impacts of dispersements

The importance of dense patches of Calanus finmarchicus to the Right Whale (see attached abstract) suggests that one should look at the effects of dispersants on both the number and density of this specific prey in the Western North Atlantic.

Please give me a call if I can help.

Regards,

Hans

MAY 5 1985

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MARINE MAMMAL SCIENCE, 2(1):1–13 (January 1986)
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ESTIMATION OF PREY DENSITIES REQUIRED BY WESTERN NORTH ATLANTIC RIGHT WHALES

ROBERT D. KENNEY

MARTIN A. M. HYMAN[1]

RALPH E. OWEN[2]

GERALD P. SCOTT[2]

HOWARD E. WINN
Graduate School of Oceanography, University of Rhode Island,
Narragansett, Rhode Island 02882-1197

ABSTRACT

The apparent lack of significant recovery of western North Atlantic right whale populations may be related to the availability of prey in exploitable densities. We have attempted to estimate the concentration of zooplankton required by right whales to obtain a net energetic benefit over the long term, using estimated values for body weight, metabolic rate, assimilation efficiency, time spent feeding, mouth size and swimming speed. The estimated range of required energy densities is 7.57 to 2,394 kcal m^{-3} (3.17×10^4 to 1.00×10^7 joule m^{-3}). These values are from one to more than three orders of magnitude greater than the densest concentration sampled in the vicinity of right whale aggregations in the Great South Channel. Right whales must seek out and exploit extremely dense patches of prey organisms in order to feed efficiently. The presence of such dense patches of zooplankton is likely to be a primary characteristic of spring, summer and fall right whale habitats.

Key words: *Eubalaena glacialis*, right whale, feeding, North Atlantic, *Calanus finmarchicus*, energetics and metabolism, habitat.

The right whale (*Eubalaena glacialis*) is the most endangered whale species inhabiting the continental shelf waters off the eastern United States. Right whale populations in the western North Atlantic were drastically reduced by whaling, with the U.S. coastal fishery collapsing as early as 1750 (Allen 1908). Right whales have been protected from commercial whaling since the mid-1930s, but

---

[1] Present address: P. O. Box 327, Saunderstown, Rhode Island 02874.

[2] Present address: National Marine Fisheries Service, Southeast Fisheries Center, 75 Virginia Beach Drive, Miami, Florida 33149.

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SECTION VI

COMMENTS ON THE DRAFT FY 1988
ATLANTIC REGIONAL STUDIES PLAN

- Regional Technical Working Group
- Scientific Advisory Committee
  --Subcommittee on Socioeconomics
- Scientific Advisory Committee
  --Subcommittee on Environmental Effects

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STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Administration
STATEWIDE PLANNING PROGRAM
265 Melrose Street
Providence, Rhode Island 02907

August 18, 1986

Mr. Timothy F. Sullivan
Chief, Environmental Studies and Leasing
U.S. Department of the Interior
Minerals Management Service
Atlantic OCS Region
1951 Kidwell Drive, Suite 601
Vienna, VA 22180

Dear Mr. Sullivan:

Thank you for sending me the Atlantic OCS Region Draft FY 1988 Regional Studies Plan.

I have just one question: what is the status of the supplemental study recommended by the North Atlantic RTWG for the identification of the spatial and depth variability of barium on Georges Bank? The request was to "amend an FY 87 study... (or) to see this as an FY 88 study," but it does not show up on the FY 87 or FY 88 list. Is the study still under deliberation by MMS?

Looking forward to your reply,

Very truly yours,

Bruce FVild

Bruce F. Vild
OCS Coordinator

BFV/sjc

United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Atlantic OCS Region
1951 Kidwell Drive, Suite 601
Vienna, Virginia 22180

AUG 29 1986

Mr. Bruce Vild
Department of Administration
Statewide Planning Program
265 Melrose Street
Providence, Rhode Island 02907

Dear Mr. Vild:

Thank you for your interest and comments on our Draft FY 1988 Regional Studies Plan. As part of our active benthic characterization study with the Battelle - New England Marine Research Laboratory we are collecting samples at a limited number of the original Georges Bank Monitoring Program (GBMP) stations. These stations were sampled in May and December 1985, and May 1986, and include GBMP stations 2, 3, 5-1, 7-A, 8, 9, 12, 13-A and 16. Enclosed are a figure showing the location of the stations and a table describing the frequency of sampling. These samples will increase our database from 3 to 5 years on Georges Bank. We intend to perform the same analysis as the GBMP. Proposals have been submitted by Battelle and U.S. Geological Survey, Woods Hole, describing the work and cost to process the extra samples.

In summary, we have completed the field sampling of additional GBMP stations, but have yet to determine that analysis of those samples is of sufficient priority to warrant funding at this time.

If you would care to discuss the matter further, please contact me at (703) 285-2187.

Sincerely,

Timothy F. Sullivan

Timothy F. Sullivan
Chief, Environmental Studies
and Leasing Section

Enclosures (2)

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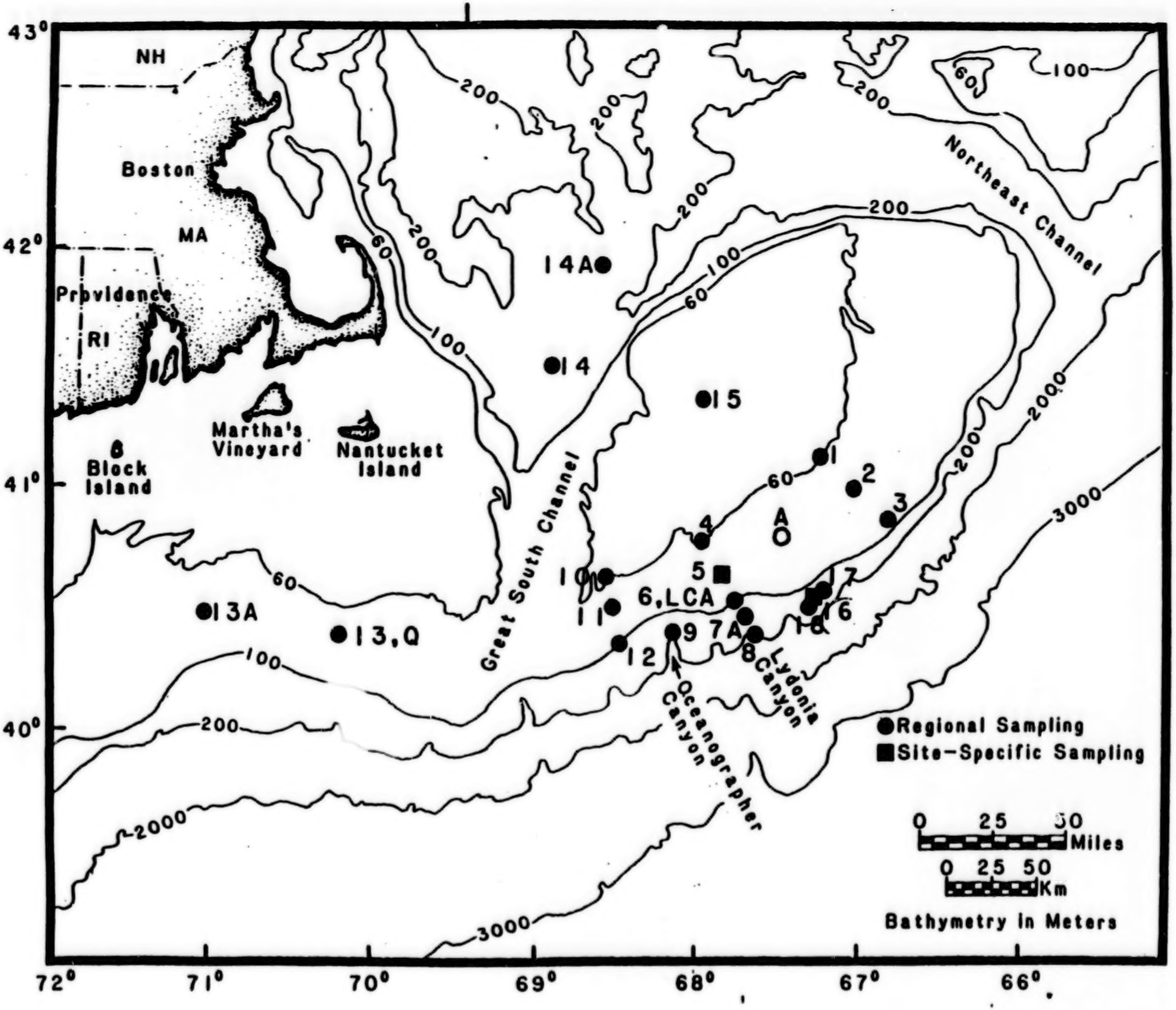
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●Regional Sampling
■Site-Specific Sampling
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Bathymetry in Meters

TABLE 1. GEORGES BANK MONITORING PROGRAM STATIONS AT WHICH SAMPLES WERE COLLECTED BETWEEN MAY 1985 AND MAY 1986.

May 1985	Dec 1985	May 1986
Sta. 2	-	2
3	-	3
5-1	5-1	5-1
7A	7A	-
8	8	-
9	9	-
12	12	-
13A	-	13A
16	16	16

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Georgia Department of Natural Resources

205 Butler Street, S.E., Floyd Towers East, Atlanta, Georgia 30334

J. Leonard Ledbetter, Commissioner
Harold F. Reheis, Assistant Director
Environmental Protection Division
(404) 656-3214

Reply To:
Room 400
19 Martin Luther King, Jr., Dr., S.W.
Atlanta, Georgia 30334

September 15, 1986

Timothy F. Sullivan
Chief, Environmental Studies and Leasing
Minerals Management Service
Atlantic OCS Region
1951 Kidwell Drive, Suite 601
Vienna, Virginia 22180

Dear Timothy:

Thank you for the opportunity to comment on the final Draft FY 1988 Regional Studies Plan. We see no need to make additional revisions of the Draft. We would like, however, to stress again our support for environmental studies related to hard mineral exploration and development on the continental shelf. The recent increases in industry interest in offshore hard mineral resources points out a need to commence with the studies necessary to determine the parameters of safe and effective activity in the OCS.

Sincerely,

Jeff Kellam
Coastal Geologist
Georgia Geologic Survey

JK/jb

cc: William H. McLemore

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University of Wisconsin–Madison

College of Agricultural and Life Sciences

Department of Rural Sociology
350 Agriculture Hall
1450 Linden Drive
Madison, WI 53706
608/262-1510 Telex: 265452

November 28, 1986

Dr. Don Aurand
Chief, Branch of Environmental Studies
U.S. Minerals Management Service
Mail Stop 644
Washington, DC 20240

Dear Don:

This letter summarizes the official comments of the Socioeconomic Subcommittee of the Scientific Advisory committee on the draft Regional Studies Plans of the Alaska, Atlantic, Gulf of Mexico and Pacific regions. The comments will be summarized below in alphabetical order, by region, with copies of this letter being sent to each of the regional studies chiefs.

Alaska

Overall, the Socioeconomic Subcommittee continues to find much that is praiseworthy in the Alaska Region studies planning process. While there is of course always room for improvement, the studies from the Alaska region continue to hold greater promise of producing scientifically valid results, on average, than those being developed in any of the other regions. More specific comments follow:

-Page 90 Economic/Demographic Analyses for future lease sales: while this study has been underway for many years, it is still likely to provide valuable information, although the Subcommittee was pleased to receive assurances that the cost of the study would be relatively low. In addition, it would be helpful to have some information on how the results of the study are being used and the ways in which the study has been tailored to those uses.

-Page 91 Wages and Salaries: this should be relatively inexpensive.

-Page 92 Commercial Fisheries Harvest Data: Again, it will be important for the data from this study to be linked to specific uses to be made, and the study should be a relatively inexpensive one.

University of Wisconsin–Madison provides equal opportunities for admission and employment.

-Page 93 Social Indicators Monitoring: Some concerns were raised by the Subcommittee that the inclusion of genealogies and household enumerations might detract from the accumulation of the statistically valid survey information that remains, in the Subcommittee's view, the most important component of this study. We were assured, however, that these additions were not to be made at the expense of the survey research. The Subcommittee continues to find this a promising study and will continue to want to be kept informed of the study's progress.

-Page 94 Trend Analysis of Social Service Delivery: the Subcommittee sees value in obtaining historical, empirical data, particularly if those data can be used to provide a valid basis for extrapolation for future impact conditions. Some concern was expressed, however, that certain components of the proposed study might not be fully appropriate as a focus for MMS-funded research. Without further information, for example, objective No. 2 (identifying responsibilities for service delivery) did not appear to be appropriate for the Environmental Studies Program, and objective 3 (future service demands) would need to be tied directly to future MMS activities to be made appropriate.

-Page 96 Outer Continental Shelf/Small Businesses: the Subcommittee sees clear value in studying the "boom/bust" cycle and its effects on small communities, but the focus on "small" businesses appears to be inappropriately narrow. In response to the observation that most of the businesses in rural Alaskan communities do appear to be "small," virtually by definition, the Committee suggested that perhaps a focus on the effects of boom/bust cycles on the entire community, including social/cultural as well as economic/demographic impacts, might be more appropriate.

-Page 98 Subsistence and the Sociocultural Environment: the Subcommittee was informed that the status of this project remains unclear, being dependent in part on the outcome of a pending Supreme Court ruling. Nevertheless, at a minimum, the literature review that would occur at an early stage of this work was viewed by the Subcommittee as having a potential to provide useful background information for MMS.

-Page 99 Production/Transportation of Natural Gas in the Artic: While this study could prove useful to exploration and development studies, on the basis of the limited information provided, the Subcommittee felt this study might be of relatively low priority among the socioeconomic studies proposed by the Alaska region.

-Page 100 Beaufort EIS studies: the Subcommittee understands that this study is currently below the funding "cut-off" level, and it is likely to be increased in priority only if development appears likely to proceed. This decision appears to the Subcommittee to be a reasonable one, although we commended the Alaska office for its efforts to work toward the integration of the social/cultural with the economic/demographic assessments of impacts. One specific criticism was that, while the economic/demographic components of the proposed study are described in quite specific terms, the description of the social/cultural assessments appears to be unnecessarily vague and cursory. If the study is moved to a higher priority, greater development of the social/cultural aspects of the proposed study would appear to be warranted.

-Page 102 Social/Cultural Monitoring: the Subcommittee listened with interest to the description of Nuiqsut, but offered no suggestions for improving this study.

-Page 103 Hope Basin: this appears to be a "contingency" study that is dependent on the actual status of leasing in the Hope Basin; this appears to the Subcommittee to be appropriate.

-Page 104 Bering Subsistence Harvest: the Subcommittee's major suggestion was that efforts needed to be taken to assure that this study would tie in with other on-going work, particularly the ethnographic work in the region.

-Page 106 Subsistence Mapping: again, this study appears to be dependent on the outcome of a Supreme Court ruling, and again, Subcommittee's major suggestion was to take steps to assure that the study will tie in with other ongoing work, particularly the anthropological studies.

-Page 107 Sandpoint Socioeconomic and Sociocultural Study: this study appears to be sufficiently low-ranked that it has little likelihood of receiving funding. If the study proves to be needed, it holds promise of being useful if it is well done, although given the low ranking, the Subcommittee did not discuss it in detail.

-Page 108 St. Paul/St. George: if this study is done, it holds the promise of drawing useful conclusions about community change and socioeconomic impacts from actual, historical experiences. Even so, it could prove helpful to have additional information on how the results of the study will be used, and on the ways in which this effort will be integrated with other ongoing efforts.

Atlantic

The Committee noted that there was only one study dealing with the subject matter of traditional concern to socioeconomic impact assessments, and that this one study was sufficiently low-ranked that it appeared unlikely to be funded.

- Synthesis of Information on Impacts on Fish and Shellfish: while this is technically not a "socioeconomic" study, Subcommittee expressed an interest in it, and expressed the intent to follow the results of the study with interest.

-10 Onshore Impacts of Offshore Oil and Gas Development: a number of minor suggestions were discussed, but this study did not appear to receive a sufficiently high ranking to receive funding. Because the study is focused primarily on updating information, it appears appropriate at present for the study to be delayed until such time as industry interest in the area increases, so that "fresh" updates will be available at the time they are needed. If this were to occur, however, the study would need to be initiated promptly enough to provide the information on a timely basis.

Gulf of Mexico

The Subcommittee noted with concern that the Gulf of Mexico proposed only three studies under the "socioeconomic" label, none of which are truly socioeconomic studies, and that none of them appeared to deserve ranking higher than the below-funding-level priorities they received. We further expressed our judgment that this lack of interest in the Regional Office was inappropriate, particularly in the context of local concerns as well as Scientific Committee urgings that Socioeconomic issues in the region are deserving of higher, not lower, priority.

In addition, the Subcommittee discussed the region's ongoing socioeconomic study and expressed the concern that this study might not be adequate to the purposes for which it was designed, although it was mutually agreed that any such judgment on this point will be withheld until such time as the Subcommittee has had the opportunity to review recent environmental impact statements prepared by the Gulf of Mexico office, which Rick Defenbaugh promised to provide directly to Subcommittee members.

After additional discussions with other members of the Scientific Committee, and in response to the concensus that the Scientific Committee's responsibilities include the recommendation of needed studies as well as the offering of comments on those that have already been proposed by the regions, the members of the Socioeconomic Committee have decided to recommend at least the following socioeconomic studies as being of sufficiently high priority that they deserve to be included in the study planning for the Gulf of Mexico region for fiscal year 1988:

1) One of the first requirements for an efficiently and effectively planned socioeconomic studies program is the identification of the structure of social as well as economic processes in the region. We express our concern that the regional office appears not yet to have heeded the Subcommittee's strong advice from last year, as expressed both verbally and in summary form in a letter from the previous chair of the Socioeconomic Committee, Dr. Leah Smith.

Unfortunately, the need for a study with such a focus has not diminished over time; instead, it appears to have increased. Thus the Subcommittee again recommends, this time with an increased sense of urgency, that the Gulf region begin immediately to develop a study or set of studies that will allow the identification of the structure of causal processes, both social and economic, in the region. Unless there is an understanding of key system processes and functioning, it is impossible to identify with any reasonable degree of confidence either the conditions that are likely to exist in the future without development or those changes or "impacts" that are likely to be created if development proceeds. To collect data before such an understanding has been developed is to lessen, unnecessarily, the likelihood that useful and adequate results will be obtained. From the evidence provided to this Subcommittee to date, it appears that the region's economic/demographic study efforts consist largely of data gathering for the sake of data gathering, and that study efforts in the realm of social/cultural impacts are so thoroughly inadequate as to be essentially nonexistent. The Subcommittee has a strong interest in working with the region to overcome these problems in the near future.

2) There is a need for a study on the impacts of oil development on the way of life of the region, particularly in coastal Louisiana and Texas. This would need to be essentially an anthropological study, although sociological and economic research efforts might prove appropriate at later stages of the study as well. We recommend that the first year of this study (fiscal year 1988) be a relatively inexpensive effort, being limited to a review of both the published and "underground" literature on the ways of life of the region, including local histories and media sources that may be found primarily in local libraries, and to initial or "pilot" stages of field research. For fiscal year 1989, a much larger study effort could then be undertaken, building on the results of this initial or reconnaissance effort, and focusing primarily on the post-lease stage of development, although both the build-up and the wind-down phases of development are likely to prove worthy of attention.

The greatest need, again, is for an anthropological-type focus on the culture and way of life of the region. It could prove useful, however, to supplement the primary anthropological focus with an emphasis on sociological variables such as community social structure, family functioning, community and ethnic conflicts, and changing proportions of residents who are newcomers or long-time "local" residents of the region, and on economic variables such as community fiscal impacts and unemployment rates--along with certain impacts that do not fall neatly within the boundaries of any single discipline, including considerations such as the direct use of the local physical environment for subsistence hunting and fishing activities, as well as for recreational purposes. The "informal service sector" of the local communities appears to be particularly deserving of attention, since many services appear to be provided in these rural communities on the basis of informal arrangements and interpersonal acquaintanceship rather than by formal or tax-supported agencies, and the failure to consider such informal services is likely to result in inaccurate conclusions about potential impacts of oil development or decline.

Pacific Region

-Page 46 No.5, Oil Spill Database: This appears similar to the study being done by Headquarters, and thus coordination is appropriate. It may be that one of these two studies would be sufficient, or that one or both should be respecified somewhat. If the study proceeds, it would be desirable to tie it in with No. 8, on historical oil spills, in the effort to begin to specify effects.

-Page 58 No. 10, Fisheries Database: Particularly as proposed, the study should be a relatively inexpensive one. Additional attention, however, should be given to at least two considerations: first, the most severe impacts appear likely to take place not on the water, but in port, and second, there may be social and cultural impacts and conflicts that will be relatively independent of, and not adequately indicated by, the economic variables that appear to be the focus of this study at present.

-Page 62 No. 12, Documentation of Positive Economic Impacts: While this study need not be seen as a "bad" one, it is likely to have relatively little usefulness as currently described. In terms of mandates, the Environmental Studies Program needs to be concerned with the full range of significant impacts, including those that are negative as well as those that are positive, and even in terms of public relations value, a study that focuses exclusively on positive economic impacts is likely to have relatively little effectiveness, particularly in California. The Subcommittee feels that an alternative approach would hold significantly greater promise; this alternative approach is outlined as additional suggestion No. 1, under "omissions," in the next section of this letter.

-Page 68 No. 15, Esthetic Resource Inventory: Eventually, a study such as this will need to be done. Perhaps it could be delayed for now, but it will be necessary for this study to be well underway, if not completed, before the scheduled 1991 sale takes place.

-Page 73 No. 17, Site-Specific Analysis for Sale 91 Leases: It appears that this study has evolved somewhat since the initial writeup was prepared. We were informed that the effort is currently planned to be more of a pilot study, and to be focused more on hypothesis generation, than is evident in the one-page description included in the draft Studies Plan. The Subcommittee encourages this change in focus. If our understanding of the revised study is correct, and if it is true the revised study will focus on social as well as on economic trends, we would recommend that the revised study receive a higher ranking than it has been given to date. Whether or not this understanding is correct, we continue to see a clear need for the studies suggested below.

Omissions:

As in the case in the Gulf of Mexico region, the Pacific region appears to have need of at least two studies that are of sufficiently high priority, in the Subcommittee's eyes, that they deserve to be added to the fiscal year 1988 Studies Plan. As is also the case in the Gulf, the first of these two studies needs to develop a better understanding of the structure of social as well as economic processes in the region, particularly those found further north along the California coast and along the coasts of Oregon and Washington. See the discussion of the Gulf Studies Plan for further information on the nature of the overall problem; more specific information is provided here:

1) The more northerly sections of the Pacific coast are very different from the southern California region where leasing has occurred in the past, and it is impossible to draw reasonable expectations for this region based on experience in southern California--or even to design an adequate data collection effort--until a better understanding of social and economic processes has been developed. Two approaches seem to be deserving of consideration; particularly given the paucity of necessary understandings at this time, it would appear prudent to pursue each of them at relatively modest levels of funding rather than to pursue either at the expense of the other. One would be to do a "case study" in a given community, and the other would be to take a preliminary look at a broader region, particularly a region further north along the coast.

In either case, the existing literature suggests that, especially when resources are limited, it tends to be advisable to concentrate at the initial stages on the identification of the full range of potential impacts rather than on more exhaustive documentation of what may be an arbitrarily narrow subset of impacts. It is likely to be only later, after their broader range of causal processes and potential impacts has been identified, that a more detailed documentation will be warranted. (See also the broader range of recommendations of the first additional study for the Gulf region, noted above, as all of these are relevant to the Pacific region.)

2) There is significant need for research, in the Pacific region, on conflict resolution. Leasing off the coast of California has not been delayed by whales, sea otters, or any other marine mammals, but by the land-based mammals known as human beings. There is a large and growing literature, meanwhile, on the various approaches to conflict resolution that have greater or lesser chances of success.

While a large-scale conflict resolution process would be inappropriate for the Pacific region at this time, there is an urgent need for fiscal year 1988 for an exploratory study in this area. This preliminary or pilot effort should be limited to two primary efforts: a) a review of the studies on conflict resolution and public involvement that have been done to date, and b) an initial set of visits to selected communities in the region, including interactions with affected publics, to allow an initial assessment of the issues that are of particular concern in the region and of the extent to which a full-scale conflict resolution effort might or might not be warranted in the region for fiscal year 1989 and beyond.

Washington Office

A number of the proposed studies, including the conflict resolution study, might appropriately be run through the Washington Office. The Subcommittee notes, however, that none of the studies currently proposed for the Washington office (except the National Academy of Sciences study) has a visible socioeconomic component. The Socioeconomic Economic Subcommittee questions the appropriateness of this omission, but we makes no further recommendations on the Washington office Studies Plan at this time.

We hope these suggestions will be useful to each of the regional studies chiefs involved, and we thank you in advance for your good-faith effort to implement the Subcommittee's suggestions.

With best wishes,

William R Freudenburg

William R. Freudenburg
Chair, Subcommittee on
Socioeconomic Impacts
Scientific Advisory Committee

WRF:KST

cc: Socioeconomic Subcommittee Members:
- Dr. Don Boesch
- Dr. Randolph Bromery
- Dr. John Burns
- Dr. Thomas Grigalunas
- Dr. Leah Smith

MMS Regional Studies Chiefs:
- Dr. Bill Laing
- Dr. Jerry Imm
- Dr. Rick Diefenbaugh
- Dr. Fred Piltz

Scientific Advisory Committee

Subcommittee on Environmental Effects

Atlantic - 1988 RSP - Environmental Effects Subcommittee

#1 Redundant study; need new and better techniques; fails to identify critical information; need to predict impact on whales in area.

#2 Need to assure study completed by 1988; review needed by Fisheries Task Force before late 1987, no later than early 1988.

#3 Critical information need but lack of success in previous studies indicates proposals should be reviewed carefully; try to implement method to include wider range of expertise.

#4 Geographic area not appropriate; untimely; recommend study be given lower priority.

#5 Should be given A2 priority; necessary study.

#6 Consider raising to higher priority.

#7 Given MMS investment, it is appropriate to have a conclusive review; recommend higher priority.

#8 Leave as A3 B2.

#9 Remove from NSL (baseline study).

N/A - p. 37
Refer to July 1986 resolution regarding marine mammals.

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March 3, 1849

U.S. DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE

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